



January 21, 2010

Darcy L. Endo-Ornato
Vice President
Government & Community Affairs

The Honorable Chairman and Members of the
Hawaii Public Utilities Commission
465 South King Street, First Floor
Kekuanaoa Building
Honolulu, Hawaii 96813

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PUBLIC UTILITIES
COMMISSION

Dear Commissioners:

Subject: Docket No. 2008-0273 – Feed-in Tariff (“FIT”) Proceeding
Comments on Alternative FIT Tariff and Standard Agreement

Pursuant to the Commission’s October 29, 2009 Order Setting Schedule in the above-subject proceeding, Hawaiian Electric Company, Inc. (“Hawaiian Electric”), Hawaii Electric Light Company, Inc. (“HELCO”), and Maui Electric Company, Limited (“MECO”) (collectively the “Hawaiian Electric Companies”), respectfully submit for Commission consideration, their comments on the proposed alternative tariff submitted by Zero Emissions Leasing LLC (“ZEL”) and Clean Energy Maui LLC (“CEM”) (“ZEL/CEM Tariff”). This correspondence also submits limited clarification of the Schedule FIT Tier 1 and Tier 2 tariffs filed by the Hawaiian Electric Companies on January 7, 2010 (“Schedule FIT Tariff”) and provides for the Commission’s convenient reference the public information referenced or utilized in development of the rates proposed in the Schedule FIT Tariff and the narrative submitted in support thereof.

Procedural History

The Commission’s October 29, 2009 Order Setting Schedule (“Order Setting Schedule”) established January 7, 2010 for the filing of proposed Tier 1 and Tier 2 tariffs which encompassed proposed tariffs, alternative tariffs and a standard contract. (Order Setting Schedule at 3) In compliance with that directive, on January 7, 2010, the Hawaiian Electric Companies submitted Schedule FIT Tier 1 and Tier 2 tariffs for each of the Hawaiian Electric Companies’ island systems and a Schedule FIT Standard Agreement, for the Commission’s approval. As a part of their Schedule FIT Tariff filing, the Hawaiian Electric Companies explained how the Schedule FIT Tariff was consistent with the directives and general principles outlined in the Commission’s September 25, 2009 Decision and Order and resulted from a transparent and collaborative process with stakeholders which included evaluation and discussion of the public information used to determine the Schedule FIT Tariff rates. On January 7, 2010, ZEL and CEM were the only other parties to file proposed Tier 1 and Tier 2 tariffs.

The Order Setting Schedule provides for comments on the proposed Tier 1 and Tier 2 tariffs to be submitted on January 21, 2010. Through this correspondence, the Hawaiian Electric Companies submit their comments on the ZEL/CEM Tariff. The Hawaiian Electric Companies appreciate the Commission's detailed examination and evaluation of the proposed tariffs, agreements and comments that have been filed pursuant to the orderly process established by the Commission. It is an important function of this process that parties not be able to avoid legitimate and constructive comment upon their proposed tariffs or agreements through the filing of their prima facie case solely as a part of the comment process. Similarly, the Commission should not countenance submissions which are not transparent, have not been subject to verification or otherwise are not appropriately supported. Allowing circumvention of the Commission's process would deprive the Commission of the scrutiny of the parties and *deny the Commission the comprehensive record that is required for decision making on these important issues.*

Comment on the ZEL/CEM Tariff

Schedule FIT – Page 1

The definition of a "Concentrating Solar Power Facility" (item (5)) should be expanded to include concentrating photovoltaic (CPV) systems.

Schedule FIT – Page 2

The proposed definition of "Onshore Wind Generating Facility" (item (10)) is not consistent with the Commission's finding in this proceeding. The Commission's September 25, 2009 Decision and Order ("Decision and Order") determined that "onshore wind" would be an eligible FIT technology. (See, Decision and Order at 31-32). The term "onshore" is indicative of an intention to have these eligible renewable generating facilities be land-based and not located off-shore in water depths of up to 20 meters. Accordingly, this definition should be disregarded by the Commission in favor of a definition consistent with the Commission's "onshore" determination.

Additionally, with regard to the proposed provision on Interconnection, it must be made clear that pursuant to the Commission's Decision and Order, a FIT renewable energy generator should not be interconnected to the Company's electric system until the generator has appropriately met the terms and conditions of the Commission approved application process, queuing, interconnection and reliability standards.

Schedule FIT – Page 4

ZEL/CEM does not provide any justification for the proposed allocation of interconnection costs set forth in the ZEL/CEM Tariff. The allocation of interconnection



costs should be consistent with the interconnection standards and processes to be determined in conjunction with the Independent Observer and parties as indicated in the Commission's Decision and Order. (See, Decision and Order at 92-94)

Schedule FIT – Page 5

In the Section entitled "Schedule FIT Agreement" the ZEL/CEM Tariff, without explanation of any kind, plainly disregards and contradicts the Commission's Decision and Order by providing compensation for curtailment of a renewable energy generating facility. At page 71 of the Decision and Order the Commission expressly declined to establish a compensation mechanism for curtailment of FIT projects due in part to the "uncertainties involved in estimating the level and effect of curtailments...." Accordingly, these contrary provisions should be disregarded by the Commission. The Commission indicated that it may revisit the "curtailment issue" during any subsequent periodic reexamination of the FIT process.

Schedule FIT – Page 5-6

In the Section entitled "Rights and Obligations Following Term of Schedule FIT Agreement" the ZEL/CEM Tariff provides in pertinent part that if the Company does not accept an offer to purchase from the renewable generating facility, the facility will have the right to sell electricity "at any rate of compensation to any person." Under such a circumstance, the Decision and Order provides for the sale of electricity from the facility "at any rate" but does not provide for the sale "to any person." (Decision and Order at 91) Therefore, this unauthorized addition by the ZEL/CEM Tariff should be disregarded by the Commission.

Schedule FIT - Page 6

The Section on "Metering Instrumentation" provides for the generator to install certain instrumentation apparently necessary to measure flows associated with calculating curtailment compensation. For the reasons discussed above in the comment on this issue at Page 5 of the ZEL/CEM tariff, this provision should be disregarded by the Commission.

Schedule FIT – Page 6-7

With regard to the table under the heading "Purchase of Renewable Energy" no support or information of any kind is provided to justify or substantiate the rates that are proposed. Similarly, no support or information is provided regarding the untimely process to be undertaken to develop the rates that are described as "to be determined." Finally, for the reasons discussed herein and set forth in the Decision and Order at 71, the Commission declined to adopt compensation for curtailment of FIT generating facilities at this time.



Accordingly, the Commission should disregard the entirety of the Table at pages 6-7 of the ZEL/CEM Tariff.

Schedule FIT – Page 8

With regard to “Net Energy Metering” this section should be modified to appropriately reflect the Commission’s directive that an existing Net Energy Metering customer has an option of either retaining its existing NEM agreement or entering into a Schedule FIT Agreement with the Company. (See, Decision and Order at 21)

Schedule FIT Agreement – Page 1

At Paragraph 3 and Section 2(a) of this page, ZEL/CEM provide for compensation for curtailment. As set forth at page 71 of the Decision and Order, this is contrary to the Commission’s determinations on this issue, and these paragraphs and provisions should be disregarded by the Commission. Similarly, Section 2(b) of the Agreement discusses the methodology to calculate curtailment compensation. This section should also be disregarded since the Commission has not authorized curtailment compensation in this proceeding.

Schedule FIT Agreement – Page 3

At Section 7 of the Agreement regarding Term, the Agreement provides that Seller shall have the right to sell electricity to “any person” in the event the utility declines its option to purchase. As discussed above, this is not provided for in the Commission’s Decision and Order and would be contrary to the orderly operation of the utility grid. Accordingly, this provision should be disregarded by the Commission.

The Hawaiian Electric Companies respectfully reserve their rights to comment further upon the ZEL/CEM tariff, any modifications thereto, and any other tariff or proposal that is late submitted, to appropriately respond to the contentions therein, or as the Commission may allow.

Clarification and Limited Modification of Schedule FIT Tariff

The following limited modifications to the Hawaiian Electric Companies’ Schedule FIT Tariff are made for the purposes of clarifying the record and the operability of the Schedule FIT Tariff provisions.

Section B

The last paragraph of Section B of the Schedule FIT Tariff provides as follows:



Any Facility selling electric energy to the Company under this Schedule FIT shall sell all the electric energy it produces above any electric energy produced for Seller's own energy consumption, to the Company for the entire term of the Schedule FIT Agreement (see Section E, below). A Seller may not sell electric energy to third parties or renegotiate with the Company for any changes to the Schedule FIT Agreement during the term of such Schedule FIT Agreement.

The Hawaiian Electric Companies respectfully propose that this provision be modified to delete the parenthetical "(see Section E, below)" as the reference is simply to the Section describing the Schedule FIT Agreement and does not meaningfully add to the tariff.

Section G (2)

The Hawaiian Electric Companies respectfully propose that the first sentence of Section G (2) of the Schedule FIT Tariff be modified as indicated to reflect the appropriate application of both the indicated tax credit and the provision as a whole.

(2) The energy payment rates specified in paragraph G(1) for solar energy technologies (PV and CSP) are based on the 35% Hawaii state renewable energy technologies income tax credit as prescribed in the Hawaii state tax code, Hawaii Revised Statutes ("HRS") Section 235-12.5.

Section H

The Hawaiian Electric Companies respectfully propose that Section H of the Schedule FIT Tariff be modified as indicated to eliminate confusion as to what the Baseline FIT Rate will be.

Facilities utilizing a Renewable Portfolio Standards ("RPS") eligible technology as defined in Hawaii Revised Statutes Section 269-91 (with the exception of biofuel projects and hybrid projects using conventional fuels or biofuels) and which are not eligible for one of the specific FIT energy payment rates set forth in this Schedule FIT, may apply for the "Baseline FIT Rate". The Baseline FIT Rate means the rate equal to the lowest specified FIT energy payment rate for any project size or technology on any island, ~~within the applicable project size category~~. Projects using the Baseline FIT Rate cannot exceed the maximum size limits for Facilities.

Provision of Reference Information

As set forth in the Hawaiian Electric Companies' January 7, 2010 filing, pursuant to the Commission's Order Setting Schedule, the Hawaiian Electric Companies conducted a technical session on rate development on November 18, 2009. This was followed by an informal exchange of proposed tariffs and contract forms, informal information requests and



responses to the information requests, and comments on the documents. This process culminated in a settlement discussion held on December 17, 2009 which was followed by subsequent settlement communications through January 6, 2010. As a part of this overall set of discussions with the parties, the Hawaiian Electric Companies' distributed the Black & Veatch public model utilized in the rate development as well as the assumptions that went into the Hawaiian Electric Companies' rate development. As the parties worked together to seek compromise on pricing inputs and conclusions, the assumptions were modified accordingly and shared with the parties either by the party advocating for the revised inputs or the Companies through their responses to the parties. Through the Hawaiian Electric Companies' January 7, 2010 filing, the Companies provided a detailed description of the methodology used to determine the proposed rates and identified the studies and reports used in that determination by technology. (Please see, Hawaiian Electric Companies' January 7, 2010 correspondence at 6-11). As a part of the ongoing communications between the Hawaiian Electric Companies and the parties it was recognized that the underlying studies and assumptions utilized in rate development may be of assistance to the Commission as it conducts its review and evaluation of the proposals in this proceeding. Accordingly, the following summary of methodology, together with appropriate electronic links (or attachment in hard copy where a relevant link was not available) are provided for the Commission's convenient reference. Electronic links have also been provided in part to reduce the voluminous amount of information that would otherwise have to be filed with the Commission. If the Commission determines that any particular electronic document that has been provided must be a part of the record, the Hawaiian Electric Companies will file that document as the Commission directs.

PV Benchmarking

The Hawaiian Electric Companies' consultant, Energy and Environmental Economics, Inc. ("E3"), used capital cost data from public reports as a starting point. The numbers were adjusted for Hawaii-specific premiums such as labor and productivity and were compared against industry data and developer quotes for accuracy. For PV in particular, module costs dropped significantly in 2009, so new prices were taken into account for the installed cost numbers. The main report used in the capital cost benchmarking was the Lawrence Berkeley National Laboratory ("LBNL") report: Tracking the Sun II: The Installed Cost of Photovoltaics in the U.S. from 1998-2008 (<http://eetd.lbl.gov/ea/EMS/reports/lbnl-2674e.pdf>).

The PV systems are assumed to be roof-mounted systems, and the capacity factors were estimated using the National Renewable Energy Laboratory ("NREL") PV Watts 1 tool with Honolulu as the location and south-facing systems (http://trredc.nrel.gov/solar/codes_algs/PVWATTS/version1/). PV Watts 1 uses typical meteorological year weather data from the actual locations to get accurate monthly and annual production outputs.



To calculate the range of capacity factors, E3 varied (1) the tilt (0-degree to 10-degrees) and (2) the DC to AC derate (79% to 80%) within PV Watts. The resulting production range was 1,417 – 1,495 kWh/kW dc in the first year of operation. To get a clean range of production numbers, E3 expanded the range up to 1,500 kWh/kW dc on the high end of the range and decreased the lower end of the range to 1,400 kWh/kW for a total range of 1,400 to 1,500 kWh/kW dc (15.98% to 17.12% capacity factors). In addition, these capacity factors were compared to real projects in Hawaii in the solar schools program. Those capacity factors were in line with what was developed using NREL's PV Watts 1 tool.

Wind Benchmarking

Capacity factors were derived from NREL's 2008 Mid-Scale Wind Study which provides the kWh of production for different wind class levels and different turbine sizes ("An Analysis of the Technical and Economic Potential for Mid-Scale Wind," Kwartin, Wolfrum, Granfield, Kagel and Appleton, 2008 (http://www.nrel.gov/wind/pdfs/midscale_analysis.pdf)). E3 calculated the capacity factor for class 4 and above which resulted in 18-24% for turbines within Tier 1 and 27%-45% for turbines within Tier 2.

In addition, E3 reviewed manufacturer wind power curves which produced results that were within the range for Tier 2 but extended the range for Tier 1. In particular, the current specifications for a 10kW Bergey defined the high end of the Tier 1 range at 34% capacity factor using the Bergey WindCad model 10 kW Excel-S (Grid-Intertie) and using wind resource assumptions at the high end of the range at 15.5+ mph assuming a 30 meter hub height. The Hawaii specific wind resource map shows a significant amount of wind resource over at 14+ mph. The 30m resource map can be found here: <http://www.state.hi.us/dbedt/ert/wwg/windy.html#oahu>. The capacity factors used in the analysis included typical losses from shear, blade contamination, turbulence and maintenance.

The study reviewed cost of generation ("COG") reports for turbine prices but determined the most accurate current information was from manufacturer quotes. The Tier 1 range incorporates quotes from 1kW-20kW from Bergey, Southwest, Ventura, Abundant RE, and Aerostar. Not all of these turbines are specifically designed to be grid integrated. However, the turbines combined with an inverter and controller should be able to deliver power to the grid. The benchmarking uses a range of costs for the electrical equipment. Tier 2 incorporates quotes from 20kW to 100kW from Jacobs, Aerostar, WindEnergySolutions, and Northern Power. See table with cost in \$/kW for turbine and tower below:



Manufacturer	Size	Cost	Cost/kW	Model
Bergey	1kW	\$ 4,432	\$ 4,432	BWC XL 1-24 & 1TU18
Southwest Windpower	1kW	\$ 4,242	\$ 4,242	Whisper 200
Southwest Windpower	2.4kW	\$ 9,200	\$ 3,833	SkyStream 3.7
Southwest Windpower	3kW	\$ 12,660	\$ 4,220	Whisper 500
Bergey min	10kW	\$ 39,650	\$ 3,965	BWC Excel-S/60
Bergey max	10kW	\$ 46,700	\$ 4,670	BWC Excel-S/61
Ventura min	10kW	\$ 30,030	\$ 3,003	
Ventura max	10kW	\$ 42,430	\$ 4,243	
Abundant RE	10kW	\$ 39,600	\$ 3,960	ARE 442
Jacobs min	20kW	\$ 58,275	\$ 2,914	31-20
Jacobs max	20kW	\$ 69,950	\$ 3,498	
Aerostar min	30kW	\$ 82,725	\$ 2,758	Aerostar 30
Aerostar max	30kW	\$ 93,550	\$ 3,118	
WindEnergySolutions	80kW	\$ 260,000	\$ 3,250	Wes 18
NorthernPower	100kW	\$ 355,000	\$ 3,550	NorthWind 100

Development costs, permitting costs, and interconnection & electrical costs for Tier 1 were developed from the NREL Bergey study which details the line by line cost of installation of 10kW Bergey turbines at a variety of locations in the Pacific Northwest. The range shown takes out the lowest and highest outlier costs. The 2005 study can be found at the following link. (http://www.nrel.gov/wind/smallwind/pdfs/sinclair_rfv_case_study.pdf) Development costs, permitting costs and interconnection costs for Tier 2 were taken from quoted installation costs from Northern Power and WindEnergySolutions for their 100kW and 80kW systems respectively. The detailed development quotes are also attached as Attachments 1 and 2 respectively.

The interconnection line item for both tiers includes the cost of electrical wiring, etc. Freight costs assume a shipping cost equal to 5% of turbine cost (which is from the B&V 2005 IRP) and an excise tax of 4.72%, Total of 9.72%. O&M costs were from the 2009 KEMA COGS which they developed for the California Energy Commission. ([http://www.energy.ca.gov/2009_energy_policy/documents/2009-08-25_workshop/presentations/05_KEMA_Building_and_Community_Scale_Renewable Technology Costs.PDF](http://www.energy.ca.gov/2009_energy_policy/documents/2009-08-25_workshop/presentations/05_KEMA_Building_and_Community_Scale_Renewable_Technology_Costs.PDF))

In-Line Hydro Benchmarking

The Hawaiian Electric Companies' proposed FIT for in-line hydroelectric generation assumes the following definition, which was developed with input from other parties in the proceeding and further presented during the December 2009 pricing workshop: *"in-line" hydroelectric generation is hydroelectric generation that utilizes energy from a water pipeline*



system that is designed primarily to serve another functional purpose where a section of pipeline is replaced with a turbine-generator section. In-line hydroelectric generation does not include (a) pumped storage hydroelectric generation, (b) run of the river hydroelectric generation or (c) any system using the energy from water from a new (after January 1, 2009) diversion from any river or stream." Based upon this definition, the cost of generation estimate removed the penstock (pipe) line item cost and reduced the construction cost by 50% to account for the lack of penstock construction. The benchmark data here was largely taken from the 2004 Micro Hydro Guide (<http://canmetenergy-canmetenergie.nrcan-rncan.gc.ca/fichier/79276/buyersguidehydroeng.pdf>) and adjusted for inflation by CPI. However, to incorporate the full range of project costs, the working group also assessed costs on installed in-line hydro units in Hawaii (see Attachment 3). All three Hawaii projects had additional construction costs which represent an undefined portion of the total cost. Thus, the mid range of the actual installed projects should represent a conservative high end. The actual installed projects do not show a clear economies of scale relationship seen in the cost of generation analysis. Other factors seem to drive the installed cost in these three cases – most likely siting/development related costs. The COGS numbers do not seem to fully address this factor. Thus the COGS numbers can be seen as a low end of the installed cost range with low siting/development costs. The working group is using the midpoint of the range of installed costs to represent the high end of the range at \$9000/kW for both Tier 1 and Tier 2 as there is no clear size relationship to scale up or down to Tier 1 projects.

In addition, the benchmarking used KEMA's 2009 CEC COGS to verify cost and performance data which can be found at http://www.energy.ca.gov/2009_energypolicy/documents/2009-08-25_workshop/presentations/05_KEMA_Building_and_Community_Scale_Renewable_Technology_Costs.PDF. The capacity factor range came from the KEMA CEC COGS which had a CF range of 10%-90%. These capacity factors were vetted with the market participants and stakeholders to the FiT docket and were deemed reasonable.

CSP Benchmarking

The working group team looked far and wide for publicly available installed costs for CSP technology within the size limits of the tiers. The team did not find any data points within Tier 1 but did find some scaling estimates. The following table shows the results of E3's public costs analysis and represents the best publicly available numbers to E3's knowledge. The most recent work is the Black & Veatch analysis for the Renewable Energy and Transmission Initiative (RETI) in 2009, the NREL study done by Black & Veatch, the NREL study done by Sargant & Lundy, and the AZ roadmap report by Navigant.

Black & Veatch Cost of Generation Analysis – RETI (2009):
http://www.energy.ca.gov/reti/steering/workgroups/phase2A_update/2009-11-19_meeting/RETI_Phase_2B_WG_Presentation_2009-11-19.pdf



The AZ Roadmap report by Navigant:
http://www.azcommerce.com/doclib/energy/az_solar_electric_roadmap_study_full_report.pdf

NREL CSP Analysis – Black & Veatch (2006): <http://www.nrel.gov/docs/fy06osti/39291.pdf>

NREL CSP Analysis – Sargant & Lundy (2003): <http://www.nrel.gov/csp/pdfs/35060.pdf>

Solar Dish	Type	Year	Capacity (kW)	Capital Cost (\$/kW)	Note	Source
Stirling Energy System	Commercial	2008	25	9,000	Cost of single 25kW dish	News
Stirling Energy System	Commercial	2004	1,000	6,000	Cost of 25kW dishes for 1MW plant	CEC
Infinia	Commercial	2008	1,000	6,667	Cost of 3kW dishes for 1MW plant	News
Solar Dish	Prototype	1997	25	12,576	1997 Prototype	DOE
Navigant Consulting	Estimate	2006	25	8,000	Estimate without scale up	Navigant Consulting
Trough	Type	Year	Capacity (kW)	Capital Cost (\$/kW)	Note	Source
DOE	Estimate	1998	30,000	2,900	Estimate	DOE
DOE	Prototype	1997	30,000	3,972	1997 Prototype	DOE
Navigant Consulting	Estimate	2007	15,000	3,900	Estimate. No storage.	Navigant Consulting
Black & Veatch	Range	2008		3600-4700	B&V gives 3,600-4,700 cost/kw range	B&V Consulting
Black & Veatch	Range	2009		5350-5550	Range incr from 2008, taken from WREZ	B&V Consulting
Black & Veatch- AZ roadmap	Range	2007	100,000	5400 - 6300	W/ 6 hr energy storage.	B&V Consulting
Black & Veatch- AZ roadmap	Estimate	2007	100,000	4,200	Wet-cooled solar trough plant	B&V Consulting
NREL - CSP in California	Estimate	2006	100,000	4,944	W/ 6 hr energy storage.	NREL
NREL- Tech assessment	Estimate	2003	50,000	4,856	W/ 12 hr energy storage.	NREL
NREL- Tech assessment	Estimate	2003	50,000	4,816	W/ 12 hr energy storage.	NREL
NREL- Fuel from the sky	Estimate	2002	100,000	2,877	W/ 4 hr heat storage	NREL
NREL- San Diego	Estimate	2005	100,000	3,246	Estimate for 2007	NREL
World Bank	Prototype	1999	13,800	4,490	Luz SEGS I in 1984	World Bank
World Bank	Prototype	1999	30,000	3,200-4,130	Luz SEGS II-VII built from 1984-1991	World Bank
World Bank	Estimate	1999	30,000	3,495	Est. 30MW for \$3495 and 200MW for \$2435	World Bank
CPV	Type	Year	Capacity (kW)	Capital Cost (\$/kW)	Note	Source
NREL	Range	2007		7000-8000	Tech roadmap gives 7,000-8,000 range	NREL
Navigant	Estimate	2006	15,000	5,000	Estimate	Navigant Consulting
SolFocus	Commercial	2009	92	6,040	Cost of 11 8.4kW for 92kW system	News
ORNL	Commercial	2007	150	6,500	Also has project breakdown	ORNL
Concentrix Solar	Commercial	2010	20,000	3,532	Paper on costs of FLATCON systems	Concentrix Solar

The capacity factors ranged from 23% to 28%. Trough systems were quoted at 23-28% while dish was estimated at 23-27% and CPV was estimated at 23-26% CF. The high end of this range represents Mojave level solar insolation. A Hawaii specific solar study from 1992, showed that for trough the reduction in solar insolation was 25% for Hawaii. The study (Solar (Thermal) Electric Generating System (SEGS) Assessment for Hawaii) can be found on the DBEDT publications website (<http://hawaii.gov/dbedt/info/energy/publications/>). A similar CPV study shows capacity factors at 23% in Los Angeles which has a similar insolation profile as Honolulu, Hawaii (<http://www.nrel.gov/pv/pdfs/43208.pdf>). Dish systems were assumed to also be at the lowest end of their range due to the solar resource levels in Hawaii. Thus the actual capacity factors modeled were 21% for trough, 23% for dish and 23% for CPV.

All of the key documents used by E3 in their benchmarking process are provided herewith in addition to the excel worksheets where the FiT rates were calculated. (See Attachment 4.)

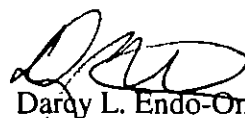


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The numbers used as inputs in the worksheet scenarios may not correspond directly with the numbers in the reports provided due to the addition of Hawaii premiums and discussions with the parties and data inputs received during the collaborative process. The Hawaiian Electric Companies included inputs from the parties when provided with third party verified documentation or when inputs were determined to be more Hawaii specific. E3 provided a transparent process so that intervenors could understand how their proposed inputs would be used in an attempt to make the process as collaborative as possible. All inputs and benchmarks provided were considered during the second stage of the analysis where E3 reviewed key inputs and sensitivities. These sensitivities helped the Hawaiian Electric Companies understand under what scenarios there could be a potential for a developer to receive excess profits. The last stage of E3's analysis looked at a smaller range of project costs for the "typical" PV, onshore wind, CSP or hydro facility. The midpoint of this range was chosen as the final FIT rate.

The Hawaiian Electric Companies respectfully submit that the Schedule FIT Tier 1 and Tier 2 Tariffs and Schedule FIT Agreement filed on January 7, 2010 are reasonable, compliant with the directives set forth in the Commission's Decision and Order, consistent with relevant and applicable stakeholder input, and will serve to incent new, renewable energy generation in the Companies' service territories. The Hawaiian Electric Companies therefore respectfully request Commission approval of these documents as the Commission deems appropriate under the circumstances.

Sincerely,



Darcy L. Endo-Omoto
Hawaiian Electric Company, Inc.
Hawaii Electric Light Company, Inc.
Maui Electric Company, Limited

Attachments

c: Service List



Planning for your Northwind[®] 100 Project

PROCESS STEPS AND ASSOCIATED COSTS

Installing a Northwind 100 wind turbine involves several steps which address site-specific project issues that impact the approach and cost. In many ways, the process is not unlike developing a home site. This document describes that process, from pre-feasibility through engineering, construction and operation and outlines variations in costs. Each step progressively reduces uncertainty and hence financial risk.

1 PRE FEASIBILITY PHASE

Prior to investing any money into your wind project, it is important to identify your wind resource and utility rate which can help you determine whether or not your intended project makes for a viable wind site. With some basic information provided by you to Northern, our team can craft an initial pre-feasibility report that would offer preliminary wind, energy cost and financial analysis estimates. This initial data should help inform your decision to move forward with your Northwind 100 turbine project.

2 FEASIBILITY PHASE

Following an initial evaluation of the value and cost of a wind project, the first prudent step is to validate the assumptions of that evaluation and identify significant risks. This is often called a feasibility study; engineering and consulting firms exist that specialize in this work. For smaller projects such as installing a small number of Northwind 100's, one need not expend the project evaluation resources for an expansive study that a large wind farm developer might need when contemplating a multi-million-dollar project.

Nevertheless, it is prudent to investigate the following items:

- Identify federal, state and local incentives available
- Identify all required permits
- Validate wind resource
- Verify current and anticipated electrical usage patterns at the site
- Identify utility interconnection requirements

For an expansive study, this step can cost anywhere from \$5,000 to \$20,000 depending on the location, the consulting firm, and the end user's appetite for uncertainty.

3 ENGINEERING PHASE

As soon as a project is deemed a go, it is important to start all the permitting and financing paperwork that will be needed. One must develop the project plan sufficiently to support permit applications, incentive grant applications, and the utility interconnection application. Completing civil and electrical system engineering will provide the project with the plans & specifications.



needed to solicit competitive bids from local suppliers and contractors for the installation work and substantially reduce cost uncertainty.

The time required for this step can vary dramatically, depending on zoning and permitting requirements. If zoning commission hearings are required with public comment periods, it's important to identify that need during the feasibility phase and plan for it. Likewise, engaging the local utility regarding the project should be handled as soon as possible as this often has a significant impact on the timing and requirements of the project. In general, the longer the process, the more expensive it can be.

This step can cost anywhere from \$30,000 to twice or three times that amount. While one can always anticipate everything that may happen, the best way to mitigate this exposure is with a careful zoning study during the feasibility phase.

Once your wind project is deemed feasible it is time to purchase your Northwind 100 wind turbine. This can be done during the beginning of the engineering phase or closer to its completion, depending on each customer's timetables, goals and market drivers. To account for Northern's 6 month lead time and to ensure meeting the customer's delivery date, we recommend that our customers order the major equipment as early as possible in this process. Other equipment (meters, relays, etc.) is routinely available on short notice. Depending on the options one requires, the price of a Northwind 100 can vary from \$330,000 to \$380,000. Ancillary electrical equipment will run between \$8,000 and \$12,000, depending on utility interconnection requirements.

4. CONSTRUCTION PHASE

With your turbine ordered it is time to commence the construction phase of your wind project. This step inherently carries the greatest degree of variation because of how varied local permitting requirements can be, how varied site conditions can be, and the variation in utility interconnection requirements.

Site work can vary from very little—just clearing a flat spot & digging a hole—to pretty substantial including storm drainage, stormwater retention, and landscaping. \$10,000 will be hard to reduce. \$40,000 is likely not even a high estimate depending upon specific site requirements.

Foundations can vary dramatically depending on soil conditions. Good granular material on a flat, easily accessible site might allow for a foundation as inexpensive as \$25,000. A swampy or rocky site might require piling or blasting and rock bolting a foundation. \$80,000 is not an unreasonable upper bound for more extreme sites. Though sites in permafrost in Alaska are off the charts.

Equipment installation is relatively straightforward. The biggest issues affecting it are access, equipment availability, and environmental conditions. The simpler installs can be undertaken for \$10,000. In less than optimal conditions, \$15,000 is a reasonable estimate. Ironically, too much wind can delay the installation of the rotor, potentially increasing costs.

Electrical installation can involve some variation due to utility interconnection requirements and proximity of the turbine to the point it ties into the local electrical distribution system. It would be difficult to find an instance where it could be done for less than \$20,000. Running power more than 600 feet or so may well require a second transformer. Utility inspection and testing

requirements can drag timelines out and increase costs. In the most challenging of projects the costs can rise above \$50,000.

5 OPERATION & MAINTENANCE PHASE

Once your turbine is erected, Northern initiates the commissioning phase which is relatively straightforward aside from weather variables. If there is enough wind to turn the rotor, then the startup can be completed for about \$5,000. Weather issues have the potential to double that cost.

Once the turbine has begun its operation, it is normal to expect up to a 3 month break-in period at which time routine adjustments may be deemed necessary to ensure the optimum performance of your turbine.

It is important to consider your annual maintenance and remote monitoring needs as you take the long view of your capital investment. Northern is committed to prompt and efficient customer service. We have created a 24/7 Northwind 100 Network Operations Center to support our turbine installations around the globe. We offer a variety of service, remote monitoring and warranty packages to best suit your projects needs. These vary anywhere in price from \$4200 to \$24,000 depending on the length of the contract and the services being accessed.

SUMMARY: The following table summarizes the activities described in this document, along with reasonable cost ranges.

PHASE	DESCRIPTION	LOW ESTIMATE	HIGH ESTIMATE
1	PRE FEASIBILITY	No Cost	No Cost
2	FEASIBILITY	\$5,000	\$20,000
3	ENGINEERING	\$30,000	\$60,000
	Northwind 100 (\$330k - \$380k)		
	Electrical Equipment (\$10k - \$20k)	\$340,000	\$400,000
4	CONSTRUCTION		
	Sitework (\$10k - \$40k)		
	Foundation (\$25k - \$80k)		
	Turbine Installation (\$10k - \$15k)		
	Electrical Installation (\$20k - \$50k)	\$65,000	\$185,000
	Startup & Commissioning (\$5k - \$10k)	\$5,000	\$10,000
5	OPERATIONS & MAINTENANCE		
	Service Contracts 1-5 yrs (\$4K - 24K)	\$4,000	\$24,000
	TOTALS	\$449,000	\$699,000

Prevailing Wind Power Price Quote

WES Standard Pricing Estimates

Size (kW)	<u>WES18</u>		<u>WES30</u>			
	<u>80</u>		<u>250</u>			
Equipment Installation						
Turbine, Tower, Relay	260,000	3,250	64%	590,000	2,360	73%
Freight	12,150	152	3%	20,250	81	3%
Installation	115,000	1,438	28%	170,000	680	21%
Subtotal Equip & Instal	<u>387,150</u>	4,839	95%	<u>780,250</u>	3,121	97%
Fees						
Structural Engineer	8,000	100	2%	10,000	40	1%
Permit Fee *	6,000	75	1%	9,000	36	1%
Permit Processing	8,000	100	2%	8,000	32	1%
Subtotal Fees	<u>22,000</u>	275	5%	<u>27,000</u>	108	3%
Total Installed Price	<u>409,150</u>	5,114		<u>807,250</u>	3,229	100%
Application Processing (Optional)						
Utility	8,000			8,000		
Subtotal Processing	<u>8,000</u>			<u>8,000</u>		
Gross PWP Charges	<u>417,150</u>			<u>815,250</u>		
Rebate **	-128,000			-350,000		
Net cash outlay	<u>289,150</u>			<u>465,250</u>		
Est'd Annual Production:	160			460		
Mwh's per year @ 13 mph avg						
Estimated cost per kwh	\$0.090			\$0.051		

Projected Life Span:	20 Years
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Prevailing Wind Power Payment Schedule

WES Standard Payment Schedule

<u>WES 18 & 30 Turbines</u>		
Labor		
Initial Deposit/Retainer	\$2,500 toward permit & utility appl processing	
Permit and utility application processing	Billed monthly on hourly basis toward contract amount	
Structural Engineer	Due as required by 3rd party engineer	
Permit Fee *	Due at as required by Govt Agency	
Installation	Billed monthly based on achievement of milestones:	
	Digging and trenching	15%
	Setting of Rebar	20%
	Pouring Concrete	20%
	Electrical Installation	15%
	Turbine Assembly & Tower Erecting	20%
	Final Install & Test	10%
Materials		
Turbine, Tower, Relay	Due at point of order	25%
	Due at point of shipment	75%
Freight	Due at point of shipment	

Materials payment schedule may be subject to change based on requirements from Wind Energy Solutions

**SUMMARY OF
HAWAII COUNTY IN-LINE HYDRO
INSTALLATIONS AND OUTPUTS**

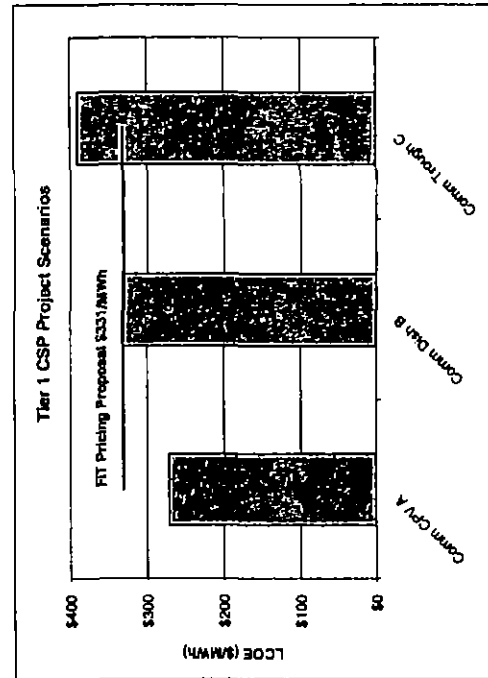
Customer	Type	Size kW	Rate Schedule	Est. Amount	\$/kW	Comments
Department of Water - Waimea Treatment Plant	In-Line Hydro - Pelton	36	Schedule Q	\$250,000	\$6,944	Installed cost were higher due to additional construction needs related to existing water system
Department of Water - Kaloko	In-Line Hydro (micro turbine) - Pelton Unit	45	Schedule Q	\$500,000	\$11,111	Installed cost were higher due to additional construction needs related to existing water system
Department of Water - Kahaluu Shaft	In-Line Hydro (micro turbine) - Pelton Unit	45	Net energy metering	\$480,000	\$10,667	Installed costs were higher (\$620,000) due to using a design calling for two in line hydro units--only one generating unit was installed. Additional construction needs may have also contributed to the cost.

Source: Mike Maloney, SOAR Technologies, (425) 861-8870, Woodinville, WA

Tier 1 CSP Resources

Inputs	Corbin CPV A	Corbin DSH B	Corbin Trough C
Size (kW)	12	3	20
Production (MWh/yr)	2,013	2,013	1,446
Construction (\$/kW)	0%	0%	0%
Construction (\$/yr)	0%	0%	0%
Operating (\$/yr)	0%	0%	0%
Annual depreciation (\$/year)	0.78%	0.00%	0.00%
Capacity Factor	27%	27%	21%
Capital Costs	\$0	\$0	\$0
Interconnection	\$0	\$0	\$0
Stirling Dish Capital Costs		\$0,525	\$0,525
Solar Trough Capital Costs	\$7,828	\$651	\$723
CPV Capital Costs	\$8,506	\$8,578	\$10,448
Freight/Electric			
Total Installed Cost	\$0	\$100	\$76
Other Costs			
Consolidated O&M (\$/MWh)			
Insurance (% CapEx/year)	0.70%	0.70%	0.70%
Property Tax (\$/year)	\$0	\$0	\$0
Land (\$/year)	\$0	\$0	\$0
Financing			
Debt percentage (%)	35%	35%	35%
Debt rate (%)	9%	9%	9%
Debt term (years)	20	20	20
Equity rate (%)	11%	11%	11%
Equity term (years)	20	20	20
PTC (\$/MWh) for 10 years	\$0	\$0	\$0
Federal ITC (%)	30%	30%	30%
State ITC (%)	30%	30%	30%
Tax Rate (all in)	40.0%	40.0%	40.0%
LCOE (\$/MWh)	\$172	\$332	\$300.70

\$300.70



Cost of Generation Calculator

All inputs are in blue.

CSP Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.012
Capital Cost (\$/kW)	\$8,505
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$120
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	5

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$271.50

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	24.2	24.0	23.8	23.6	23.5	23.3	23.1	22.9	22.8	22.6	22.4
Cost of Generation (\$/mWh)	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50
Operating Revenues	\$6,564	\$6,515	\$6,466	\$6,418	\$6,370	\$6,322	\$6,274	\$6,227	\$6,181	\$6,134	\$6,088
Fixed O&M	\$600	\$615	\$630	\$646	\$662	\$679	\$696	\$713	\$731	\$749	\$768
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$714	\$732	\$751	\$769	\$789	\$808	\$829	\$849	\$870	\$892	\$915
Land Cost	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$33	\$33	\$32	\$32	\$32	\$32	\$31	\$31	\$31	\$31	\$30
Operating Expenses	\$1,467	\$1,500	\$1,533	\$1,568	\$1,603	\$1,639	\$1,676	\$1,714	\$1,752	\$1,792	\$1,833
Interest Payment	\$3,215	\$3,152	\$3,084	\$3,009	\$2,928	\$2,839	\$2,742	\$2,637	\$2,522	\$2,397	\$2,260
Principal Payment	\$698	\$761	\$830	\$904	\$986	\$1,074	\$1,171	\$1,276	\$1,391	\$1,517	\$1,653
Debt Service	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913
Tax Depreciation - State	\$20,413	\$32,661	\$19,598	\$11,758	\$11,758	\$5,879	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$6,475	(\$30,798)	(\$17,747)	(\$9,917)	(\$9,919)	(\$4,035)	\$1,856	\$1,877	\$1,906	\$1,945	\$1,995
State Income Tax (benefit)	\$389	(\$1,852)	(\$1,067)	(\$596)	(\$597)	(\$243)	\$112	\$113	\$115	\$117	\$120
Tax Depreciation - Fed'l	\$17,351	\$27,762	\$16,657	\$9,994	\$9,994	\$4,897	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$9,147	(\$24,046)	(\$13,740)	(\$7,557)	(\$7,558)	(\$2,910)	\$1,745	\$1,764	\$1,792	\$1,828	\$1,875
Federal Income Tax (benefit)	\$3,202	(\$8,416)	(\$4,809)	(\$2,645)	(\$2,645)	(\$1,019)	\$611	\$617	\$627	\$640	\$656
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$30,619										
State Tax Credit	\$25,006										
Net Taxes (due)	\$52,034	\$10,269	\$5,877	\$3,241	\$3,242	\$1,261	(\$722)	(\$730)	(\$742)	(\$757)	(\$776)
Net Cash Flow	(\$6,342)	\$5,218	\$11,371	\$6,896	\$4,178	\$4,096	\$2,031	(\$37)	(\$130)	(\$227)	(\$434)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 102,065
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 86,755
Fixed O&M Escalation	State depreciation basis \$ 102,065
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -27328.91181
Fuel Cost (\$/MBtu)	5 -26825.62413
Fuel Cost Escalation	slope 100.6575359
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	22.3	22.1	21.9	21.8	21.6	21.4	21.3	21.1	21.0
Cost of Generation (\$/MWh)	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50	\$271.50
Operating Revenues	\$6,043	\$5,997	\$5,952	\$5,908	\$5,863	\$5,819	\$5,776	\$5,732	\$5,689
Fixed O&M	\$787	\$807	\$827	\$848	\$869	\$891	\$913	\$936	\$959
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$937	\$961	\$985	\$1,010	\$1,035	\$1,061	\$1,087	\$1,114	\$1,142
Land Cost	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$30	\$30	\$30	\$30	\$29	\$29	\$29	\$29	\$28
Operating Expenses	\$1,875	\$1,918	\$1,962	\$2,007	\$2,053	\$2,100	\$2,149	\$2,199	\$2,250
Interest Payment	\$2,112	\$1,949	\$1,773	\$1,580	\$1,370	\$1,141	\$892	\$620	\$323
Principal Payment	\$1,802	\$1,964	\$2,141	\$2,333	\$2,543	\$2,772	\$3,022	\$3,294	\$3,590
Debt Service	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,056	\$2,130	\$2,218	\$2,321	\$2,440	\$2,578	\$2,735	\$2,914	\$3,117
State Income Tax (benefit)	\$124	\$128	\$133	\$140	\$147	\$155	\$165	\$175	\$187
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$1,933	\$2,002	\$2,085	\$2,181	\$2,294	\$2,423	\$2,571	\$2,739	\$2,929
Federal Income Tax (benefit)	\$676	\$701	\$730	\$763	\$803	\$848	\$900	\$959	\$1,025
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$800)	(\$829)	(\$863)	(\$903)	(\$950)	(\$1,003)	(\$1,064)	(\$1,134)	(\$1,213)
Net Cash Flow	(\$546)	(\$663)	(\$786)	(\$916)	(\$1,053)	(\$1,197)	(\$1,351)	(\$1,514)	(\$1,686)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.003
Capital Cost (\$/kW)	\$9,576
Fixed O&M (\$/kW)	\$100
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$120
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	23%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives		Investment
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	24.5%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$331.82

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Cost of Generation (\$/MWh)	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82
Operating Revenues	\$2,006	\$2,008	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006
Fixed O&M	\$300	\$308	\$315	\$323	\$331	\$339	\$348	\$357	\$366	\$375	\$384
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$201	\$206	\$211	\$217	\$222	\$228	\$233	\$239	\$245	\$251	\$257
Land Cost	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10
Operating Expenses	\$631	\$644	\$656	\$670	\$683	\$697	\$711	\$726	\$741	\$756	\$771
Interest Payment	\$905	\$887	\$868	\$847	\$824	\$799	\$772	\$742	\$710	\$675	\$636
Principal Payment	\$187	\$214	\$233	\$255	\$277	\$302	\$330	\$359	\$392	\$427	\$465
Debt Service	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101
Tax Depreciation - State	\$5,745	\$9,193	\$5,516	\$3,309	\$3,309	\$1,655	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,762	(\$8,718)	(\$5,034)	(\$2,820)	(\$2,811)	(\$1,145)	\$523	\$538	\$555	\$575	\$598
State Income Tax (benefit)	\$106	(\$524)	(\$303)	(\$170)	(\$169)	(\$69)	\$31	\$32	\$33	\$35	\$36
Tax Depreciation - Fed	\$4,884	\$7,814	\$4,888	\$2,813	\$2,813	\$1,406	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed	\$2,518	(\$6,815)	(\$3,904)	(\$2,154)	(\$2,145)	(\$828)	\$491	\$505	\$522	\$541	\$562
Federal Income Tax (benefit)	\$881	(\$2,385)	(\$1,366)	(\$754)	(\$751)	(\$290)	\$172	\$177	\$183	\$189	\$197
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$8,618										
State Tax Credit	\$7,038										
Net Taxes (due)	\$14,669	\$2,909	\$1,669	\$924	\$920	\$359	(\$203)	(\$209)	(\$216)	(\$224)	(\$233)
Net Cash Flow	(\$18,672)	\$14,942	\$3,170	\$1,917	\$1,158	\$566	(\$10)	(\$31)	(\$52)	(\$75)	(\$100)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 28,727
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 24,418
Fixed O&M Escalation	State depreciation basis \$ 28,727
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -8746.275133
Fuel Cost (\$/MBtu)	5 -8614.4829
Fuel Cost Escalation	slope 26.35844658
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Cost of Generation (\$/mWh)	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82	\$331.82
Operating Revenues	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006	\$2,006
Fixed O&M	\$394	\$403	\$414	\$424	\$434	\$445	\$456	\$468	\$480
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$264	\$270	\$277	\$284	\$291	\$299	\$306	\$314	\$321
Land Cost	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10
Operating Expenses	\$787	\$804	\$821	\$838	\$856	\$874	\$892	\$912	\$931
Interest Payment	\$594	\$549	\$499	\$445	\$386	\$321	\$251	\$174	\$91
Principal Payment	\$507	\$553	\$603	\$657	\$716	\$780	\$851	\$927	\$1,010
Debt Service	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$624	\$653	\$686	\$723	\$764	\$811	\$862	\$920	\$984
State Income Tax (benefit)	\$38	\$39	\$41	\$43	\$46	\$49	\$52	\$55	\$59
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$586	\$614	\$645	\$679	\$718	\$762	\$810	\$864	\$924
Federal Income Tax (benefit)	\$205	\$215	\$226	\$238	\$251	\$267	\$284	\$303	\$324
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$243)	(\$254)	(\$267)	(\$281)	(\$297)	(\$315)	(\$335)	(\$358)	(\$383)
Net Cash Flow	(126)	(154)	(183)	(215)	(249)	(285)	(324)	(365)	(410)

Cost of Generation Calculator

All inputs are in \$/yr.

CSP Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$10,646
Fixed O&M (\$/kW)	\$76
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$1,200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	8%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	5

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$389.90

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
Cost of Generation (\$/MWh)	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90
Operating Revenues	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345
Fixed O&M	\$1,520	\$1,558	\$1,597	\$1,637	\$1,678	\$1,720	\$1,763	\$1,807	\$1,852	\$1,898	\$1,946
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,490	\$1,528	\$1,566	\$1,605	\$1,645	\$1,686	\$1,728	\$1,772	\$1,816	\$1,861	\$1,908
Land Cost	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72
Operating Expenses	\$4,282	\$4,357	\$4,435	\$4,514	\$4,595	\$4,678	\$4,763	\$4,850	\$4,940	\$5,031	\$5,125
Interest Payment	\$6,707	\$6,576	\$6,433	\$6,277	\$6,107	\$5,922	\$5,721	\$5,501	\$5,261	\$5,000	\$4,715
Principal Payment	\$1,457	\$1,588	\$1,731	\$1,886	\$2,056	\$2,241	\$2,443	\$2,663	\$2,902	\$3,164	\$3,448
Debt Service	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164
Tax Depreciation - State	\$42,583	\$68,133	\$40,880	\$24,528	\$24,528	\$12,264	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$12,938	(\$64,721)	(\$37,402)	(\$20,973)	(\$20,885)	(\$8,519)	\$3,862	\$3,994	\$4,145	\$4,314	\$4,505
State Income Tax (benefit)	\$778	(\$3,893)	(\$2,250)	(\$1,262)	(\$1,256)	(\$512)	\$232	\$240	\$249	\$259	\$271
Tax Depreciation - Fed'l	\$36,196	\$57,913	\$34,748	\$20,849	\$20,849	\$10,424	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$18,547	(\$50,608)	(\$29,020)	(\$16,033)	(\$15,949)	(\$6,167)	\$3,630	\$3,754	\$3,895	\$4,055	\$4,234
Federal Income Tax (benefit)	\$8,491	(\$17,713)	(\$10,157)	(\$5,611)	(\$5,582)	(\$2,158)	\$1,270	\$1,314	\$1,363	\$1,419	\$1,482
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$63,875										
State Tax Credit	\$52,165										
Net Taxes (due)	\$108,770	\$21,608	\$12,407	\$6,873	\$6,838	\$2,671	(\$1,503)	(\$1,554)	(\$1,613)	(\$1,679)	(\$1,753)
Net Cash Flow	(\$138,396)	\$110,670	\$23,430	\$14,154	\$6,541	\$4,175	(\$4,175)	(\$223)	(\$370)	(\$528)	(\$696)

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Cost of Generation

All inputs are in blue.

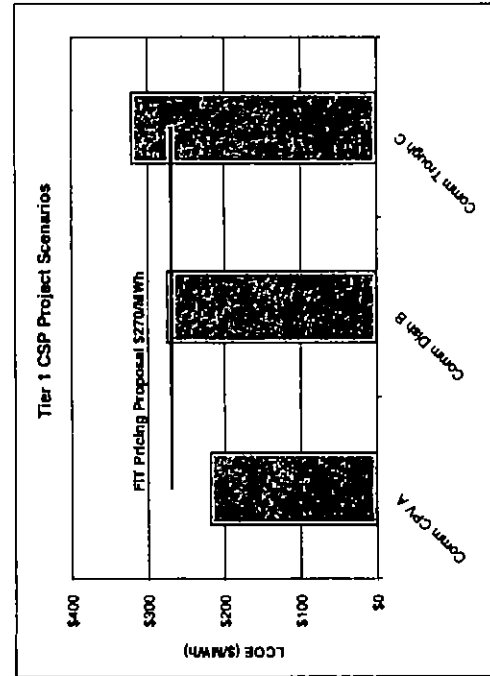
Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 212,917
Fixed O&M (\$/kW)	Fed1 depreciation basis \$ 180,979
Fixed O&M Escalation	State depreciation basis \$ 212,917
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -62557.13091
Fuel Cost (\$/MBtu)	5 -61754.91732
Fuel Cost Escalation	slope 160.4427183
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
Cost of Generation (\$/mWh)	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90	\$389.90
Operating Revenues	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345	\$14,345
Fixed O&M	\$1,994	\$2,044	\$2,095	\$2,148	\$2,201	\$2,256	\$2,313	\$2,371	\$2,430
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,956	\$2,004	\$2,055	\$2,106	\$2,159	\$2,213	\$2,268	\$2,325	\$2,383
Land Cost	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72
Operating Expenses	\$5,222	\$5,320	\$5,422	\$5,525	\$5,632	\$5,741	\$5,852	\$5,967	\$6,084
Interest Payment	\$4,405	\$4,067	\$3,698	\$3,296	\$2,858	\$2,380	\$1,860	\$1,292	\$674
Principal Payment	\$3,759	\$4,097	\$4,466	\$4,868	\$5,306	\$5,783	\$6,304	\$6,871	\$7,489
Debt Service	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$4,719	\$4,958	\$5,226	\$5,524	\$5,856	\$6,224	\$6,633	\$7,086	\$7,587
State Income Tax (benefit)	\$284	\$298	\$314	\$332	\$352	\$374	\$399	\$426	\$456
Tax Depreciation - Fed1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$4,435	\$4,660	\$4,912	\$5,192	\$5,504	\$5,850	\$6,234	\$6,660	\$7,131
Federal Income Tax (benefit)	\$1,552	\$1,631	\$1,719	\$1,817	\$1,926	\$2,047	\$2,182	\$2,331	\$2,496
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$1,836)	(\$1,929)	(\$2,033)	(\$2,149)	(\$2,278)	(\$2,422)	(\$2,581)	(\$2,757)	(\$2,952)
Net Cash Flow	(\$1,836)	(\$1,929)	(\$2,033)	(\$2,149)	(\$2,278)	(\$2,422)	(\$2,581)	(\$2,757)	(\$2,952)

Tier 1 CSP Resources
0 - 20 MW

Inputs	Comm CPV A	Comm Dish B	Comm Dish C
Site (MW)	12	3	20
Production (MWh/yr)	2,015	2,015	1,840
Contract life	0%	0%	0%
System life	20	20	20
Annual degradation (%/year)	0.75%	0.00%	0.00%
Capacity Factor	35%	35%	31%
Capital Costs	\$8	\$8	\$8
Installation Costs	\$8,825	\$8,825	\$8,825
Shipping Dish Capital Costs			\$8,825
Solar Trough Capital Costs			
CPV Capital Costs	\$7,528	\$651	\$723
Freight/E-rate	\$8,505	\$8,576	\$10,646
Total Installed Cost	\$16,333	\$19,001	\$29,294
QUM Costs	\$500	\$100	\$75
Other Costs			
Insurance (% CapEx/yr)	0.70%	0.70%	0.70%
Property Tax (\$/year)	\$120	\$60	\$1,200
Land (\$/year)			
Financing			
Debt percentage (%)	35%	35%	35%
Debt ratio (%)	9%	9%	9%
Debt term (years)	20	20	20
Equity rate (%)	11%	11%	11%
Tax incentives			
Depreciation Years	5	5	5
PTC (\$/MWh for 10 years)	NA	NA	NA
Federal ITC (%)	30%	30%	30%
State ITC (%)	30%	30%	30%
Tax Rate (%)	40.0%	40.0%	40.0%
LCOE (\$/MWh)	\$219	\$275	\$331
FTT Pricing Proposal (midpoint of range)	\$	260.5	\$

\$260.76



Cost of Generation Calculator

All inputs are in blue.

CSP Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.012
Capital Cost (\$/kW)	\$8,505
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$120
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	35.0%
No. of Systems (inverters)	5
State Capital	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$218.71

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	24.2	24.0	23.8	23.6	23.5	23.3	23.1	22.8	22.8	22.6	22.4
Cost of Generation (\$/mWh)	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71
Operating Revenues	\$5,288	\$5,248	\$5,209	\$5,170	\$5,131	\$5,093	\$5,054	\$5,017	\$4,979	\$4,942	\$4,905
Fixed O&M	\$600	\$615	\$630	\$646	\$662	\$679	\$696	\$713	\$731	\$749	\$768
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$714	\$732	\$751	\$769	\$789	\$808	\$829	\$849	\$870	\$892	\$915
Land Cost	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$26	\$26	\$26	\$26	\$26	\$25	\$25	\$25	\$25	\$25	\$25
Operating Expenses	\$1,461	\$1,494	\$1,527	\$1,561	\$1,597	\$1,633	\$1,670	\$1,708	\$1,746	\$1,786	\$1,827
Interest Payment	\$3,215	\$3,152	\$3,084	\$3,009	\$2,928	\$2,839	\$2,742	\$2,637	\$2,522	\$2,397	\$2,260
Principal Payment	\$698	\$761	\$830	\$904	\$986	\$1,074	\$1,171	\$1,276	\$1,391	\$1,517	\$1,653
Debt Service	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913
Tax Depreciation - State	\$20,413	\$32,661	\$19,596	\$11,758	\$11,758	\$5,879	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$15,922	(\$32,058)	(\$18,998)	(\$11,158)	(\$11,151)	(\$5,258)	\$843	\$672	\$711	\$759	\$817
State Income Tax (benefit)	\$958	(\$1,928)	(\$1,143)	(\$871)	(\$871)	(\$316)	\$39	\$40	\$43	\$46	\$49
Tax Depreciation - Fed'l	\$17,351	\$27,762	\$16,657	\$9,994	\$9,994	\$4,997	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$18,026	(\$25,231)	(\$14,916)	(\$8,724)	(\$8,717)	(\$4,060)	\$604	\$632	\$668	\$713	\$768
Federal Income Tax (benefit)	\$6,309	(\$8,831)	(\$5,221)	(\$3,053)	(\$3,051)	(\$1,421)	\$211	\$221	\$234	\$250	\$269
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$30,619										
State Tax Credit	\$35,723										
Net Taxes (due)	\$59,075	\$10,759	\$6,363	\$3,724	\$3,722	\$1,737	(\$250)	(\$262)	(\$276)	(\$295)	(\$318)
Net Cash Flow	(\$6,342)	\$8,989	\$10,601	\$6,132	\$3,420	\$3,343	\$1,284	(\$779)	(\$866)	(\$957)	(\$1,053)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 102,065
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 86,755
Fixed O&M Escalation	State depreciation basis \$ 102,065
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -22015.27354
Fuel Cost (\$/MBtu)	5 -21511.98586
Fuel Cost Escalation	slope 100.6575359
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	22.3	22.1	21.9	21.8	21.6	21.4	21.3	21.1	21.0
Cost of Generation (\$/mWh)	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71	\$218.71
Operating Revenues	\$4,668	\$4,831	\$4,795	\$4,759	\$4,723	\$4,688	\$4,653	\$4,618	\$4,583
Fixed O&M	\$787	\$807	\$827	\$848	\$869	\$891	\$913	\$936	\$959
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$937	\$961	\$985	\$1,010	\$1,035	\$1,061	\$1,087	\$1,114	\$1,142
Land Cost	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$24	\$24	\$24	\$24	\$24	\$23	\$23	\$23	\$23
Operating Expenses	\$1,869	\$1,912	\$1,956	\$2,001	\$2,047	\$2,095	\$2,143	\$2,193	\$2,244
Interest Payment	\$2,112	\$1,949	\$1,773	\$1,580	\$1,370	\$1,141	\$892	\$620	\$323
Principal Payment	\$1,802	\$1,964	\$2,141	\$2,333	\$2,543	\$2,772	\$3,022	\$3,294	\$3,590
Debt Service	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913	\$3,913
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$887	\$970	\$1,066	\$1,178	\$1,306	\$1,452	\$1,618	\$1,805	\$2,016
State Income Tax (benefit)	\$53	\$58	\$64	\$71	\$79	\$87	\$97	\$109	\$121
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$834	\$912	\$1,002	\$1,107	\$1,228	\$1,365	\$1,521	\$1,697	\$1,895
Federal Income Tax (benefit)	\$292	\$319	\$351	\$388	\$430	\$478	\$532	\$594	\$663
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$345)	(\$377)	(\$415)	(\$458)	(\$508)	(\$565)	(\$630)	(\$702)	(\$784)
Net Cash Flow	(\$1,260)	(\$1,371)	(\$1,489)	(\$1,614)	(\$1,745)	(\$1,885)	(\$2,033)	(\$2,191)	(\$2,359)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.003
Capital Cost (\$/kW)	\$9,576
Fixed O&M (\$/kW)	\$100
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$120
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	23%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	35.0%
No. of Systems (inverters)	5
CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$275.08

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Cost of Generation (\$/mWh)	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08
Operating Revenues	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663
Fixed O&M	\$300	\$308	\$315	\$323	\$331	\$339	\$348	\$357	\$366	\$375	\$384
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$201	\$206	\$211	\$217	\$222	\$228	\$233	\$239	\$245	\$251	\$257
Land Cost	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8
Operating Expenses	\$629	\$642	\$655	\$668	\$681	\$695	\$709	\$724	\$739	\$754	\$770
Interest Payment	\$805	\$887	\$868	\$847	\$824	\$799	\$772	\$742	\$710	\$675	\$636
Principal Payment	\$197	\$214	\$233	\$255	\$277	\$302	\$330	\$359	\$392	\$427	\$465
Debt Service	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101
Tax Depreciation - State	\$5,745	\$9,193	\$5,516	\$3,309	\$3,309	\$1,655	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$4,437	(\$9,059)	(\$5,376)	(\$3,161)	(\$3,152)	(\$1,486)	\$181	\$197	\$214	\$234	\$257
State Income Tax (benefit)	\$267	(\$545)	(\$323)	(\$190)	(\$190)	(\$89)	\$11	\$12	\$13	\$14	\$15
Tax Depreciation - Fed1	\$4,884	\$7,814	\$4,688	\$2,813	\$2,813	\$1,406	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$5,032	(\$7,135)	(\$4,225)	(\$2,475)	(\$2,466)	(\$1,149)	\$171	\$185	\$201	\$220	\$241
Federal Income Tax (benefit)	\$1,761	(\$2,487)	(\$1,479)	(\$866)	(\$863)	(\$402)	\$60	\$65	\$70	\$77	\$84
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$8,618										
State Tax Credit	\$10,054										
Net Taxes (due)	\$16,644	\$3,042	\$1,802	\$1,056	\$1,053	\$491	(\$71)	(\$76)	(\$83)	(\$91)	(\$100)
Net Cash Flow	(\$18,672)	\$2,962	\$1,709	\$850	\$933	\$357	(\$219)	(\$239)	(\$261)	(\$284)	(\$308)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 28,727
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 24,418
Fixed O&M Escalation	State depreciation basis \$ 28,727
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -7250.714693
Fuel Cost (\$/MBtu)	5 -7118.92246
Fuel Cost Escalation	slope 26 35844658
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Cost of Generation (\$/mWh)	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08	\$275.08
Operating Revenues	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663	\$1,663
Fixed O&M	\$394	\$403	\$414	\$424	\$434	\$445	\$456	\$468	\$480
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$264	\$270	\$277	\$284	\$291	\$299	\$306	\$314	\$321
Land Cost	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8
Operating Expenses	\$786	\$802	\$819	\$836	\$854	\$872	\$891	\$910	\$929
Interest Payment	\$594	\$549	\$499	\$445	\$386	\$321	\$251	\$174	\$91
Principal Payment	\$507	\$553	\$603	\$657	\$716	\$780	\$851	\$927	\$1,010
Debt Service	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101	\$1,101
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$283	\$312	\$345	\$382	\$423	\$469	\$521	\$578	\$642
State Income Tax (benefit)	\$17	\$19	\$21	\$23	\$25	\$28	\$31	\$35	\$39
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$266	\$293	\$324	\$359	\$398	\$441	\$490	\$544	\$604
Federal Income Tax (benefit)	\$93	\$103	\$113	\$126	\$139	\$154	\$171	\$190	\$211
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$110)	(\$121)	(\$134)	(\$149)	(\$165)	(\$183)	(\$203)	(\$225)	(\$250)
Net Cash Flow	(334)	(362)	(392)	(424)	(457)	(494)	(532)	(574)	(618)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$10,646
Fixed O&M (\$/kW)	\$76
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$1,200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic/Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35.0%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$320.81

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
Cost of Generation (\$/mWh)	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81
Operating Revenues	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803
Fixed O&M	\$1,520	\$1,558	\$1,597	\$1,637	\$1,678	\$1,720	\$1,763	\$1,807	\$1,852	\$1,898	\$1,946
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,490	\$1,528	\$1,566	\$1,605	\$1,645	\$1,686	\$1,728	\$1,772	\$1,816	\$1,861	\$1,908
Land Cost	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59
Operating Expenses	\$4,269	\$4,345	\$4,422	\$4,501	\$4,582	\$4,665	\$4,750	\$4,837	\$4,927	\$5,019	\$5,113
Interest Payment	\$6,707	\$6,576	\$6,433	\$6,277	\$6,107	\$5,922	\$5,721	\$5,501	\$5,261	\$5,000	\$4,715
Principal Payment	\$1,457	\$1,588	\$1,731	\$1,886	\$2,056	\$2,241	\$2,443	\$2,663	\$2,902	\$3,164	\$3,448
Debt Service	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164
Tax Depreciation - State	\$42,583	\$68,133	\$40,880	\$24,528	\$24,528	\$12,264	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$32,765	(\$67,251)	(\$39,931)	(\$23,503)	(\$23,414)	(\$11,048)	\$1,333	\$1,465	\$1,815	\$1,785	\$1,976
State Income Tax (benefit)	\$1,971	(\$4,045)	(\$2,402)	(\$1,414)	(\$1,408)	(\$665)	\$80	\$88	\$97	\$107	\$119
Tax Depreciation - Fed'l	\$36,196	\$57,913	\$34,748	\$20,849	\$20,849	\$10,424	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$37,181	(\$52,985)	(\$31,398)	(\$18,410)	(\$18,326)	(\$8,544)	\$1,252	\$1,377	\$1,518	\$1,678	\$1,857
Federal Income Tax (benefit)	\$13,013	(\$18,545)	(\$10,989)	(\$6,443)	(\$6,414)	(\$2,990)	\$438	\$482	\$531	\$587	\$650
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$63,875										
State Tax Credit	\$74,521										
Net Taxes (due)	\$123,412	\$22,590	\$13,391	\$7,857	\$7,823	\$3,655	(\$519)	(\$570)	(\$629)	(\$695)	(\$769)
Net Cash Flow	(\$138,396)	\$122,782	\$21,885	\$12,609	\$6,996	\$6,881	\$2,630	(\$1,629)	(\$1,768)	(\$1,916)	(\$2,073)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 212,917
Fixed O&M (\$/kW)	Fed1 depreciation basis \$ 180,979
Fixed O&M Escalation	State depreciation basis \$ 212,917
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -51472.38883
Fuel Cost (\$/MBtu)	5 -50670.17523
Fuel Cost Escalation	slope 160.4427183
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

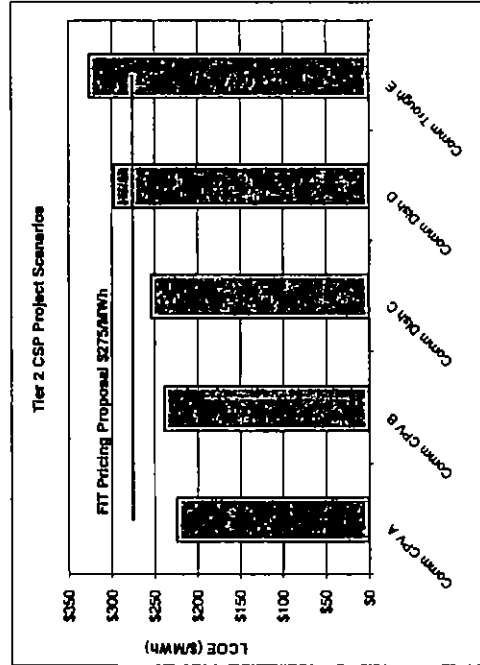
Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
Cost of Generation (\$/mWh)	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81	\$320.81
Operating Revenues	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803	\$11,803
Fixed O&M	\$1,994	\$2,044	\$2,095	\$2,148	\$2,201	\$2,256	\$2,313	\$2,371	\$2,430
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,958	\$2,004	\$2,055	\$2,106	\$2,159	\$2,213	\$2,268	\$2,325	\$2,383
Land Cost	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59
Operating Expenses	\$5,209	\$5,308	\$5,409	\$5,513	\$5,619	\$5,728	\$5,840	\$5,954	\$6,072
Interest Payment	\$4,405	\$4,067	\$3,698	\$3,296	\$2,858	\$2,380	\$1,860	\$1,292	\$674
Principal Payment	\$3,759	\$4,097	\$4,466	\$4,868	\$5,306	\$5,783	\$6,304	\$6,871	\$7,489
Debt Service	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164	\$8,164
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,190	\$2,429	\$2,897	\$2,995	\$3,327	\$3,695	\$4,104	\$4,557	\$5,058
State Income Tax (benefit)	\$132	\$146	\$162	\$180	\$200	\$222	\$247	\$274	\$304
Tax Depreciation - Fed1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$2,058	\$2,283	\$2,535	\$2,815	\$3,127	\$3,473	\$3,857	\$4,283	\$4,754
Federal Income Tax (benefit)	\$720	\$799	\$887	\$985	\$1,094	\$1,216	\$1,350	\$1,499	\$1,664
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$852)	(\$945)	(\$1,049)	(\$1,165)	(\$1,294)	(\$1,438)	(\$1,597)	(\$1,773)	(\$1,968)
Net Cash Flow	(2,421)	(2,613)	(2,818)	(3,038)	(3,273)	(3,526)	(3,797)	(4,087)	(4,400)

Tier 2 CSP Resources
20 - 500 kW

Inputs	Comm CPV A	Comm CPV B	Comm Dish C	Comm Dish D	Comm Trough E
Size (kW)	150	100	500	25	500
Production (MWh/yr)	2,015	2,015	2,015	2,015	1,840
Contract life	0%	0%	0%	0%	0%
System life	20	20	20	20	20
Annual degradation (%/year)	0.75%	0.75%	0.00%	0.00%	0.00%
Capacity Factor	23%	23%	23%	23%	21%
Installed Cost (\$/kW)	\$6,804	\$7,135	\$7,353	\$8,578	\$6,998
Land Cost (\$/acre)	\$1,500	\$1,000	\$10,000	\$500	\$30,000
75% of installed cost assumed to be equipment subject to depreciation.					
Land lease costs range from \$2,000-\$175,000/acre/year, we assume \$10,000/acre given recent DHI-L land deals					
Trough systems require 3 acres/500kW					
Dish systems require 1 acre/500kW					
LCOE (\$/MWh)	\$224	\$228	\$254	\$297	\$328

\$275.12

FT Pricing Proposal
(midpoint of range)



Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.15
Capital Cost (\$/kW)	\$6,804
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$1,500
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	5

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$224.40

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	302.2	300.0	297.7	295.5	293.3	291.1	288.9	286.7	284.6	282.4	280.3
Cost of Generation (\$/MWh)	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40
Operating Revenues	\$67,818	\$67,309	\$66,804	\$66,303	\$65,806	\$65,312	\$64,823	\$64,336	\$63,854	\$63,375	\$62,900
Fixed O&M	\$7,500	\$7,688	\$7,880	\$8,077	\$8,279	\$8,486	\$8,698	\$8,915	\$9,138	\$9,366	\$9,601
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$7,145	\$7,323	\$7,506	\$7,694	\$7,886	\$8,083	\$8,285	\$8,493	\$8,705	\$8,923	\$9,146
Land Cost	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$339	\$337	\$334	\$332	\$329	\$327	\$324	\$322	\$319	\$317	\$314
Operating Expenses	\$16,484	\$16,847	\$17,220	\$17,602	\$17,994	\$18,396	\$18,807	\$19,229	\$19,662	\$20,106	\$20,561
Interest Payment	\$32,150	\$31,522	\$30,837	\$30,090	\$29,277	\$28,390	\$27,423	\$26,369	\$25,220	\$23,968	\$22,603
Principal Payment	\$6,983	\$7,611	\$8,296	\$9,043	\$9,856	\$10,743	\$11,710	\$12,764	\$13,913	\$15,165	\$16,530
Debt Service	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133
Tax Depreciation - State	\$204,130	\$326,608	\$195,965	\$117,579	\$117,579	\$58,789	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$65,113	(\$307,668)	(\$177,218)	(\$98,968)	(\$99,043)	(\$40,262)	\$18,593	\$18,738	\$18,972	\$19,301	\$19,736
State Income Tax (benefit)	\$3,917	(\$18,506)	(\$10,660)	(\$5,953)	(\$5,957)	(\$2,422)	\$1,118	\$1,127	\$1,141	\$1,161	\$1,187
Tax Depreciation - Fed'l	\$173,510	\$277,617	\$166,570	\$99,942	\$99,942	\$49,971	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$91,816	(\$240,171)	(\$137,163)	(\$75,378)	(\$75,449)	(\$29,022)	\$17,474	\$17,611	\$17,831	\$18,140	\$18,549
Federal Income Tax (benefit)	\$32,136	(\$84,060)	(\$48,007)	(\$26,382)	(\$26,407)	(\$10,158)	\$6,116	\$6,164	\$6,241	\$6,349	\$6,492
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$306,195										
State Tax Credit	\$250,059										
Net Taxes (due)	\$520,202	\$102,566	\$58,667	\$32,335	\$32,365	\$12,579	(\$7,234)	(\$7,291)	(\$7,382)	(\$7,510)	(\$7,679)
Net Cash Flow	(\$653,422)	\$332,403	\$113,895	\$69,118	\$41,903	\$41,044	\$20,363	(\$352)	(\$1,317)	(\$2,323)	(\$3,374)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 1,020,650
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 867,552
Fixed O&M Escalation	State depreciation basis \$ 1,020,650
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -282342.252
Fuel Cost (\$/MBtu)	5 -276051.156
Fuel Cost Escalation	slope 1258.219199
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	278.2	276.1	274.0	272.0	269.9	267.9	265.9	263.9	261.9
Cost of Generation (\$/mWh)	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40	\$224.40
Operating Revenues	\$62,428	\$61,960	\$61,495	\$61,034	\$60,576	\$60,122	\$59,671	\$59,223	\$58,779
Fixed O&M	\$9,841	\$10,087	\$10,339	\$10,597	\$10,862	\$11,134	\$11,412	\$11,697	\$11,990
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$9,374	\$9,809	\$9,849	\$10,095	\$10,347	\$10,606	\$10,871	\$11,143	\$11,422
Land Cost	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$312	\$310	\$307	\$305	\$303	\$301	\$298	\$296	\$294
Operating Expenses	\$21,027	\$21,505	\$21,995	\$22,498	\$23,013	\$23,541	\$24,082	\$24,637	\$25,205
Interest Payment	\$21,115	\$19,493	\$17,726	\$15,799	\$13,699	\$11,410	\$8,915	\$6,196	\$3,231
Principal Payment	\$18,018	\$19,640	\$21,407	\$23,334	\$25,434	\$27,723	\$30,218	\$32,937	\$35,902
Debt Service	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$20,286	\$20,961	\$21,774	\$22,737	\$23,864	\$25,171	\$26,674	\$28,391	\$30,342
State Income Tax (benefit)	\$1,220	\$1,261	\$1,310	\$1,368	\$1,435	\$1,514	\$1,604	\$1,708	\$1,825
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$19,066	\$19,700	\$20,464	\$21,369	\$22,429	\$23,657	\$25,069	\$26,683	\$28,517
Federal Income Tax (benefit)	\$6,673	\$6,895	\$7,162	\$7,479	\$7,850	\$8,280	\$8,774	\$9,339	\$9,981
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$7,893)	(\$8,156)	(\$8,472)	(\$8,847)	(\$9,285)	(\$9,794)	(\$10,379)	(\$11,047)	(\$11,806)
Net Cash Flow	(\$5,625)	(\$6,834)	(\$8,105)	(\$9,444)	(\$10,855)	(\$12,346)	(\$13,923)	(\$15,593)	(\$17,366)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$7,135
Fixed O&M (\$/kW)	\$80
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$10,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	24%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	8%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	14%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	24.5%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$253.98

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2
Cost of Generation (\$/MWh)	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98
Operating Revenues	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979
Fixed O&M	\$40,000	\$41,000	\$42,025	\$43,076	\$44,153	\$45,256	\$46,388	\$47,547	\$48,736	\$49,955	\$51,203
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$24,972	\$25,597	\$26,237	\$26,893	\$27,565	\$28,254	\$28,960	\$29,684	\$30,426	\$31,187	\$31,967
Land Cost	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335
Operating Expenses	\$76,307	\$77,832	\$79,597	\$81,303	\$83,052	\$84,845	\$86,683	\$88,567	\$90,497	\$92,477	\$94,505
Interest Payment	\$112,376	\$110,179	\$107,785	\$105,175	\$102,331	\$99,230	\$95,850	\$92,167	\$88,151	\$83,774	\$79,004
Principal Payment	\$24,406	\$26,603	\$28,997	\$31,607	\$34,451	\$37,552	\$40,932	\$44,615	\$48,631	\$53,007	\$57,778
Debt Service	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782
Tax Depreciation - State	\$713,497	\$1,141,596	\$684,957	\$410,974	\$410,974	\$205,487	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$238,833	(\$1,062,727)	(\$605,360)	(\$330,474)	(\$329,378)	(\$122,583)	\$84,446	\$86,246	\$88,331	\$90,728	\$93,470
State Income Tax (benefit)	\$14,366	(\$63,923)	(\$36,412)	(\$19,878)	(\$19,812)	(\$7,373)	\$5,079	\$5,188	\$5,313	\$5,457	\$5,622
Tax Depreciation - Fed'l	\$606,473	\$870,356	\$582,214	\$349,328	\$349,328	\$174,664	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$331,492	(\$827,565)	(\$466,204)	(\$248,949)	(\$247,920)	(\$84,387)	\$79,368	\$81,058	\$83,018	\$85,271	\$87,848
Federal Income Tax (benefit)	\$116,022	(\$289,648)	(\$163,171)	(\$87,132)	(\$86,772)	(\$29,535)	\$27,778	\$28,370	\$29,056	\$29,845	\$30,747
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$1,070,246										
State Tax Credit	\$874,034										
Net Taxes (due)	\$1,813,892	\$353,571	\$199,584	\$107,010	\$106,584	\$36,909	(\$32,858)	(\$33,558)	(\$34,369)	(\$35,302)	(\$36,369)
Net Cash Flow	(\$2,318,866)	\$1,867,782	\$405,836	\$250,184	\$155,905	\$153,729	\$82,261	\$10,657	\$8,073	\$5,331	\$2,419

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ATTACHMENT 4

DOCKET NO. 2008-0273

Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 3,567,486
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 3,032,363
Fixed O&M Escalation	State depreciation basis \$ 3,567,486
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -942824.8981
Fuel Cost (\$/MBtu)	5 -924263.5804
Fuel Cost Escalation	slope 3712.263538
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2
Cost of Generation (\$/MWh)	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98	\$253.98
Operating Revenues	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979	\$266,979
Fixed O&M	\$52,483	\$53,796	\$55,140	\$56,519	\$57,932	\$59,380	\$60,865	\$62,386	\$63,946
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$32,766	\$33,585	\$34,425	\$35,285	\$36,167	\$37,072	\$37,998	\$38,948	\$39,922
Land Cost	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335	\$1,335
Operating Expenses	\$96,584	\$98,716	\$100,900	\$103,139	\$105,434	\$107,787	\$110,198	\$112,670	\$115,203
Interest Payment	\$73,804	\$68,136	\$61,958	\$55,223	\$47,883	\$39,882	\$31,161	\$21,655	\$11,294
Principal Payment	\$62,978	\$68,646	\$74,824	\$81,559	\$88,899	\$96,900	\$105,621	\$115,127	\$125,488
Debt Service	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$96,591	\$100,128	\$104,122	\$108,617	\$113,662	\$119,310	\$125,620	\$132,654	\$140,482
State Income Tax (benefit)	\$5,810	\$6,023	\$6,263	\$6,533	\$6,837	\$7,177	\$7,556	\$7,979	\$8,450
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$90,781	\$94,105	\$97,859	\$102,083	\$106,825	\$112,134	\$118,084	\$124,875	\$132,032
Federal Income Tax (benefit)	\$31,773	\$32,937	\$34,251	\$35,729	\$37,389	\$39,247	\$41,322	\$43,636	\$46,211
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$37,583)	(\$38,960)	(\$40,513)	(\$42,263)	(\$44,226)	(\$46,423)	(\$48,878)	(\$51,815)	(\$54,661)
Net Cash Flow	(\$3,970)	(\$7,478)	(\$11,216)	(\$15,204)	(\$19,463)	(\$24,013)	(\$28,879)	(\$34,088)	(\$39,667)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.1
Capital Cost (\$/kW)	\$7,323
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$1,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	5

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$238.75

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	201.5	200.0	198.5	197.0	195.5	194.0	192.6	191.1	189.7	188.3	186.9
Cost of Generation (\$/MWh)	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75
Operating Revenues	\$48,103	\$47,742	\$47,384	\$47,029	\$46,676	\$46,326	\$45,979	\$45,634	\$45,291	\$44,952	\$44,615
Fixed O&M	\$5,000	\$5,125	\$5,253	\$5,384	\$5,519	\$5,657	\$5,798	\$5,943	\$6,092	\$6,244	\$6,400
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$5,126	\$5,254	\$5,385	\$5,520	\$5,658	\$5,799	\$5,944	\$6,093	\$6,245	\$6,401	\$6,561
Land Cost	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$241	\$239	\$237	\$235	\$233	\$232	\$230	\$228	\$226	\$225	\$223
Operating Expenses	\$11,366	\$11,618	\$11,875	\$12,140	\$12,410	\$12,688	\$12,973	\$13,265	\$13,564	\$13,870	\$14,185
Interest Payment	\$23,066	\$22,615	\$22,124	\$21,588	\$21,004	\$20,368	\$19,674	\$18,918	\$18,094	\$17,195	\$16,216
Principal Payment	\$5,010	\$5,460	\$5,952	\$6,488	\$7,071	\$7,708	\$8,402	\$9,158	\$9,982	\$10,880	\$11,859
Debt Service	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076
Tax Depreciation - State	\$148,451	\$234,321	\$140,593	\$84,356	\$84,356	\$42,178	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$46,622	(\$220,812)	(\$127,208)	(\$71,054)	(\$71,094)	(\$28,908)	\$13,332	\$13,451	\$13,634	\$13,886	\$14,214
State Income Tax (benefit)	\$2,804	(\$13,282)	(\$7,652)	(\$4,274)	(\$4,276)	(\$1,739)	\$802	\$809	\$820	\$835	\$855
Tax Depreciation - Fed1	\$124,483	\$199,173	\$119,504	\$71,702	\$71,702	\$35,851	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$65,785	(\$172,382)	(\$98,467)	(\$54,127)	(\$54,164)	(\$20,842)	\$12,530	\$12,642	\$12,814	\$13,051	\$13,359
Federal Income Tax (benefit)	\$23,025	(\$60,334)	(\$34,464)	(\$18,945)	(\$18,958)	(\$7,295)	\$4,385	\$4,425	\$4,485	\$4,568	\$4,676
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$219,676										
State Tax Credit	\$179,402										
Net Taxes (due)	\$373,249	\$73,615	\$42,115	\$23,218	\$23,234	\$9,034	(\$5,187)	(\$5,234)	(\$5,305)	(\$5,403)	(\$5,530)
Net Cash Flow	(\$475,965)	\$381,910	\$1,665	\$49,548	\$30,032	\$29,424	\$14,596	(\$257)	(\$940)	(\$1,653)	(\$2,397)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 732,254
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 622,416
Fixed O&M Escalation	State depreciation basis \$ 732,254
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -200265.1689
Fuel Cost (\$/MBtu)	5 -196071.1049
Fuel Cost Escalation	slope 838.8127993
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	185.5	184.1	182.7	181.3	180.0	178.8	177.3	175.9	174.6
Cost of Generation (\$/mWh)	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75	\$238.75
Operating Revenues	\$44,280	\$43,948	\$43,618	\$43,291	\$42,967	\$42,644	\$42,324	\$42,007	\$41,692
Fixed O&M	\$6,560	\$6,724	\$6,893	\$7,065	\$7,241	\$7,423	\$7,608	\$7,798	\$7,993
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$6,725	\$6,894	\$7,066	\$7,243	\$7,424	\$7,609	\$7,799	\$7,994	\$8,194
Land Cost	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$221	\$220	\$218	\$216	\$215	\$213	\$212	\$210	\$208
Operating Expenses	\$14,507	\$14,838	\$15,177	\$15,524	\$15,880	\$16,245	\$16,619	\$17,003	\$17,396
Interest Payment	\$15,149	\$13,985	\$12,717	\$11,335	\$9,828	\$8,186	\$6,396	\$4,445	\$2,318
Principal Payment	\$12,927	\$14,090	\$15,358	\$16,741	\$18,247	\$18,889	\$21,679	\$23,631	\$25,757
Debt Service	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$14,624	\$15,125	\$15,724	\$16,432	\$17,258	\$18,213	\$19,309	\$20,559	\$21,978
State Income Tax (benefit)	\$880	\$910	\$946	\$988	\$1,038	\$1,096	\$1,161	\$1,237	\$1,322
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$13,744	\$14,215	\$14,779	\$15,444	\$16,220	\$17,118	\$18,148	\$19,323	\$20,656
Federal Income Tax (benefit)	\$4,811	\$4,975	\$5,173	\$5,405	\$5,677	\$5,991	\$6,352	\$6,763	\$7,230
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$5,690)	(\$5,885)	(\$6,118)	(\$6,394)	(\$6,715)	(\$7,087)	(\$7,513)	(\$8,000)	(\$8,551)
Net Cash Flow	(3,993)	(4,850)	(5,752)	(6,702)	(7,704)	(8,763)	(9,883)	(11,071)	(12,331)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.025
Capital Cost (\$/kW)	\$9,576
Fixed O&M (\$/kW)	\$80
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$500
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	24%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	5
CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$297.18

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6
Cost of Generation (\$/MWh)	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18
Operating Revenues	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620
Fixed O&M	\$2,000	\$2,050	\$2,101	\$2,154	\$2,208	\$2,263	\$2,319	\$2,377	\$2,437	\$2,498	\$2,560
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,676	\$1,718	\$1,761	\$1,805	\$1,850	\$1,896	\$1,943	\$1,992	\$2,042	\$2,093	\$2,145
Land Cost	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$78	\$78	\$78	\$78	\$78	\$78	\$78	\$78	\$78	\$78	\$78
Operating Expenses	\$4,254	\$4,346	\$4,440	\$4,536	\$4,635	\$4,737	\$4,841	\$4,947	\$5,057	\$5,169	\$5,283
Interest Payment	\$7,541	\$7,393	\$7,233	\$7,058	\$6,867	\$6,659	\$6,432	\$6,185	\$5,915	\$5,622	\$5,301
Principal Payment	\$1,638	\$1,785	\$1,946	\$2,121	\$2,312	\$2,520	\$2,747	\$2,994	\$3,263	\$3,557	\$3,877
Debt Service	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179
Tax Depreciation - State	\$47,878	\$76,605	\$45,963	\$27,578	\$27,578	\$13,789	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$14,598	(\$72,724)	(\$42,016)	(\$23,552)	(\$23,460)	(\$9,565)	\$4,347	\$4,488	\$4,648	\$4,830	\$5,035
State Income Tax (benefit)	\$878	(\$4,374)	(\$2,527)	(\$1,417)	(\$1,411)	(\$575)	\$261	\$270	\$280	\$291	\$303
Tax Depreciation - Fed'l	\$40,696	\$65,114	\$39,069	\$23,441	\$23,441	\$11,721	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$20,901	(\$56,859)	(\$32,594)	(\$17,999)	(\$17,912)	(\$6,921)	\$4,086	\$4,218	\$4,368	\$4,539	\$4,732
Federal Income Tax (benefit)	\$7,315	(\$19,901)	(\$11,408)	(\$6,300)	(\$6,269)	(\$2,422)	\$1,430	\$1,476	\$1,529	\$1,589	\$1,656
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$71,817	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$58,651	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$122,274	\$24,275	\$13,935	\$7,716	\$7,680	\$2,998	(\$1,691)	(\$1,746)	(\$1,808)	(\$1,879)	(\$1,959)
Net Cash Flow	(\$155,604)	\$124,462	\$26,371	\$15,937	\$9,486	\$4,702	(\$91)	(\$252)	(\$424)	(\$607)	(\$801)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 239,391
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 203,482
Fixed O&M Escalation	State depreciation basis \$ 239,391
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -68114.82758
Fuel Cost (\$/MBtu)	5 -66968.80816
Fuel Cost Escalation	slope 229.2038833
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6
Cost of Generation (\$/mWh)	\$287.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18	\$297.18
Operating Revenues	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620	\$15,620
Fixed O&M	\$2,624	\$2,890	\$2,757	\$2,826	\$2,897	\$2,969	\$3,043	\$3,119	\$3,197
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,199	\$2,254	\$2,310	\$2,368	\$2,427	\$2,488	\$2,550	\$2,614	\$2,679
Land Cost	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$78	\$78	\$78	\$78	\$78	\$78	\$78	\$78	\$78
Operating Expenses	\$5,401	\$5,522	\$5,645	\$5,772	\$5,902	\$6,035	\$6,171	\$6,311	\$6,454
Interest Payment	\$4,952	\$4,572	\$4,158	\$3,706	\$3,213	\$2,676	\$2,091	\$1,453	\$758
Principal Payment	\$4,226	\$4,606	\$5,021	\$5,473	\$5,965	\$6,502	\$7,088	\$7,725	\$8,421
Debt Service	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$5,266	\$5,526	\$5,817	\$6,142	\$6,505	\$6,909	\$7,358	\$7,856	\$8,408
State Income Tax (benefit)	\$317	\$332	\$350	\$369	\$391	\$416	\$443	\$473	\$506
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$4,850	\$5,194	\$5,467	\$5,773	\$6,114	\$6,493	\$6,915	\$7,383	\$7,902
Federal Income Tax (benefit)	\$1,732	\$1,818	\$1,914	\$2,020	\$2,140	\$2,273	\$2,420	\$2,584	\$2,766
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$2,049)	(\$2,150)	(\$2,263)	(\$2,390)	(\$2,531)	(\$2,688)	(\$2,863)	(\$3,057)	(\$3,271)
Net Cash Flow	(1,009)	(1,231)	(1,467)	(1,721)	(1,992)	(2,282)	(2,593)	(2,926)	(3,284)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$6,996
Fixed O&M (\$/kW)	\$71
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$11
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$30,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	40%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	1
CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$325.84

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8
Cost of Generation (\$/mWh)	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84
Operating Revenues	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708
Fixed O&M	\$35,500	\$36,368	\$37,297	\$38,230	\$39,185	\$40,165	\$41,169	\$42,198	\$43,253	\$44,335	\$45,443
Variable O&M	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118
Insurance	\$24,485	\$25,098	\$25,725	\$26,368	\$27,027	\$27,703	\$28,396	\$29,106	\$29,833	\$30,579	\$31,343
Land Cost	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499
Operating Expenses	\$101,602	\$103,101	\$104,639	\$106,214	\$107,829	\$109,484	\$111,181	\$112,920	\$114,703	\$116,530	\$118,403
Interest Payment	\$110,185	\$108,031	\$105,683	\$103,124	\$100,335	\$97,295	\$93,981	\$90,369	\$86,432	\$82,141	\$77,463
Principal Payment	\$23,930	\$26,084	\$28,431	\$30,990	\$33,779	\$36,820	\$40,133	\$43,745	\$47,682	\$51,974	\$56,652
Debt Service	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115
Tax Depreciation - State	\$699,584	\$1,119,335	\$671,601	\$402,961	\$402,961	\$201,480	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$111,653)	(\$1,030,759)	(\$582,215)	(\$312,591)	(\$311,417)	(\$108,552)	\$94,546	\$96,419	\$98,573	\$101,037	\$103,842
State Income Tax (benefit)	(\$6,717)	(\$62,000)	(\$35,020)	(\$18,802)	(\$18,732)	(\$6,529)	\$5,687	\$5,800	\$5,929	\$6,077	\$6,246
Tax Depreciation - Fed'l	\$594,647	\$951,435	\$570,861	\$342,517	\$342,517	\$171,258	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$8)	(\$800,859)	(\$448,454)	(\$233,345)	(\$232,241)	(\$71,800)	\$88,859	\$90,619	\$92,644	\$94,980	\$97,596
Federal Income Tax (benefit)	(\$3)	(\$320,343)	(\$178,582)	(\$93,338)	(\$92,896)	(\$28,720)	\$35,544	\$36,248	\$37,058	\$37,984	\$39,038
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$1,049,377										
State Tax Credit	\$500,000										
Net Taxes (due)	\$1,556,097	\$382,344	\$213,802	\$112,140	\$111,628	\$35,249	(\$41,230)	(\$42,047)	(\$42,987)	(\$44,061)	(\$45,285)
Net Cash Flow	(2,273,649)	1,620,088	444,836	274,557	171,520	169,393	91,359	13,182	10,626	7,904	5,002

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Cost of Generation

All inputs are in blue.

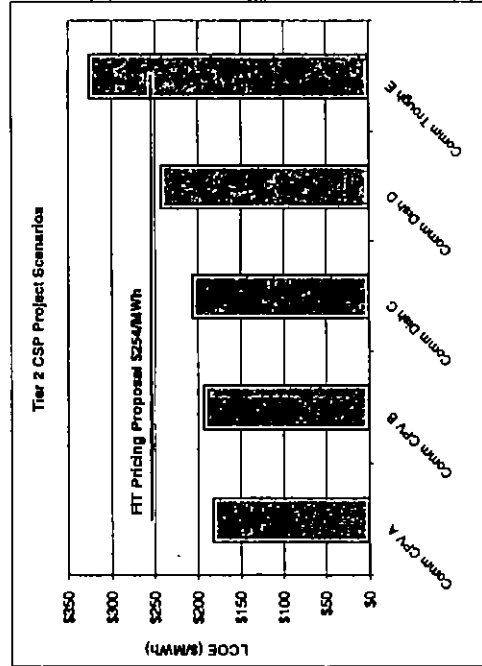
Technology/Assumptions (\$/kW)	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 3,497,922
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,973,234
Fixed O&M Escalation	State depreciation basis \$ 3,497,922
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -1206432.962
Fuel Cost (\$/MBtu)	5 -1187920.341
Fuel Cost Escalation	slope 3702.524269
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8
Cost of Generation (\$/mWh)	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84
Operating Revenues	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708
Fixed O&M	\$46,579	\$47,744	\$48,937	\$50,161	\$51,415	\$52,700	\$54,017	\$55,368	\$56,752
Variable O&M	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118
Insurance	\$32,127	\$32,930	\$33,753	\$34,597	\$35,462	\$36,349	\$37,258	\$38,189	\$39,144
Land Cost	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499
Operating Expenses	\$120,322	\$122,290	\$124,307	\$126,374	\$128,493	\$130,665	\$132,891	\$135,173	\$137,512
Interest Payment	\$72,365	\$66,807	\$60,749	\$54,147	\$46,949	\$39,104	\$30,554	\$21,233	\$11,074
Principal Payment	\$61,750	\$67,308	\$73,365	\$79,968	\$87,165	\$95,010	\$103,561	\$112,882	\$123,041
Debt Service	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$107,021	\$110,611	\$114,652	\$119,188	\$124,266	\$129,939	\$136,263	\$143,302	\$151,122
State Income Tax (benefit)	\$6,437	\$8,653	\$6,896	\$7,169	\$7,475	\$7,816	\$8,198	\$8,620	\$9,090
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$100,584	\$103,958	\$107,756	\$112,018	\$116,791	\$122,123	\$128,067	\$134,682	\$142,032
Federal Income Tax (benefit)	\$40,234	\$41,583	\$43,102	\$44,807	\$46,716	\$48,849	\$51,227	\$53,873	\$56,813
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$46,671)	(\$48,236)	(\$49,999)	(\$51,976)	(\$54,181)	(\$56,665)	(\$59,423)	(\$62,493)	(\$65,903)
Net Cash Flow	(1,400)	(4,933)	(8,712)	(12,757)	(17,091)	(21,737)	(26,721)	(32,072)	(37,822)

Tier 2 CSP Resources
20 - 500 kW

Inputs	Comm CPV A	Comm CPV B	Comm Dish C	Comm Dish D	Comm Trough E
Size (kW)	150	100	500	25	500
Production (\$/MWh)	2,015	2,015	2,015	2,015	1,840
Contract life	0%	0%	0%	0%	0%
System life	20	20	20	20	20
Annual degradation (%/year)	0.75%	0.75%	0.00%	0.00%	0.00%
Capacity Factor (%)	29%	29%	29%	29%	21%
Installed Cost (\$/kW)	\$ 6,804	\$ 7,125	\$ 7,253	\$ 7,253	\$ 6,998
Land Cost (\$/acre)	\$ 1,500	\$ 1,000	\$ 10,000	\$ 10,000	\$ 90,000
75% of installed cost assumed to be equipment subject to freight/deliver.					
Land lease costs range from: \$2,000-\$175,000/acre/year, we assume \$10,000/acre given recent DRI-E land deals					
Trough systems require 3 acres/500kW					
Dish systems require 1 acre/500kW					
CPV Capital Costs (\$/kW)	\$6,242	\$6,625	\$485	\$485	\$475
Freight/Equip	\$462	\$468	\$7,135	\$7,135	\$6,998
Total Installed Cost	\$6,804	\$7,223	\$7,620	\$7,620	\$7,473
Other Costs	\$0	\$0	\$0	\$0	\$0
Insurance (% CapEx/year)	0.70%	0.70%	0.70%	0.70%	0.70%
Property Tax (\$/year)	\$ -	\$ -	\$ -	\$ -	\$ -
Land (\$/year)	\$ -	\$ -	\$ -	\$ -	\$ -
Type of System (Tier 2 Comm.)	Comm	Comm	Comm	Comm	Comm
Financing	35%	35%	35%	35%	35%
Debt percentage (%)	35%	35%	35%	35%	35%
Debt rate (%)	8%	8%	8%	8%	8%
Debt term (years)	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%
Tax incentives	3	3	3	3	3
Depreciation Years	3	3	3	3	3
PTC (\$/MWh) for 10 years	NA	NA	NA	NA	NA
Federal ITC (%)	30%	30%	30%	30%	30%
State ITC (%)	35%	35%	35%	35%	35%
Tier Beta (all in)	40.0%	40.0%	40.0%	40.0%	40.0%

\$254.00



FIT Pricing Proposal
(midpoint of range)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.15
Capital Cost (\$/kW)	\$6,804
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$1,500
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	8%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35.0%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$182.17

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	302.2	300.0	297.7	295.5	293.3	291.1	288.9	286.7	284.6	282.4	280.3
Cost of Generation (\$/MWh)	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17
Operating Revenues	\$55,054	\$54,642	\$54,232	\$53,825	\$53,421	\$53,021	\$52,623	\$52,228	\$51,837	\$51,448	\$51,062
Fixed O&M	\$7,500	\$7,688	\$7,880	\$8,077	\$8,279	\$8,486	\$8,698	\$8,915	\$9,138	\$9,366	\$9,601
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$7,145	\$7,323	\$7,506	\$7,694	\$7,886	\$8,083	\$8,285	\$8,493	\$8,705	\$8,923	\$9,146
Land Cost	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$275	\$273	\$271	\$269	\$267	\$265	\$263	\$261	\$259	\$257	\$255
Operating Expenses	\$16,420	\$16,784	\$17,157	\$17,540	\$17,932	\$18,334	\$18,746	\$19,169	\$19,602	\$20,046	\$20,502
Interest Payment	\$32,150	\$31,522	\$30,837	\$30,090	\$29,277	\$28,390	\$27,423	\$26,369	\$25,220	\$23,968	\$22,603
Principal Payment	\$6,983	\$7,611	\$8,296	\$9,043	\$9,856	\$10,743	\$11,710	\$12,764	\$13,913	\$15,165	\$16,530
Debt Service	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133
Tax Depreciation - State	\$204,130	\$326,608	\$195,965	\$117,579	\$117,579	\$58,789	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$159,582	(\$320,272)	(\$189,727)	(\$111,384)	(\$111,366)	(\$52,492)	\$6,454	\$6,691	\$7,015	\$7,434	\$7,958
State Income Tax (benefit)	\$9,599	(\$19,264)	(\$11,412)	(\$6,700)	(\$6,699)	(\$3,157)	\$388	\$402	\$422	\$447	\$479
Tax Depreciation - Fed'l	\$173,510	\$277,617	\$166,570	\$98,942	\$98,942	\$49,971	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$180,602	(\$252,017)	(\$148,920)	(\$87,047)	(\$87,031)	(\$40,517)	\$6,066	\$6,288	\$6,593	\$6,987	\$7,479
Federal Income Tax (benefit)	\$63,211	(\$88,206)	(\$52,122)	(\$30,467)	(\$30,461)	(\$14,181)	\$2,123	\$2,201	\$2,307	\$2,445	\$2,618
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$306,195										
State Tax Credit	\$357,227										
Net Taxes (due)	\$590,613	\$107,470	\$63,534	\$37,166	\$37,159	\$17,338	(\$2,511)	(\$2,603)	(\$2,729)	(\$2,893)	(\$3,096)
Net Cash Flow	(\$63,422)	\$90,114	\$106,195	\$61,476	\$34,319	\$33,516	\$12,892	(\$7,768)	(\$6,677)	(\$9,628)	(\$11,669)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 1,020,650
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 867,552
Fixed O&M Escalation	State depreciation basis \$ 1,020,650
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -229205.8693
Fuel Cost (\$/MBtu)	5 -222914.7733
Fuel Cost Escalation	slope 1258.219199
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	278.2	276.1	274.0	272.0	269.9	267.9	265.9	263.9	261.9
Cost of Generation (\$/mWh)	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17	\$182.17
Operating Revenues	\$50,679	\$50,299	\$49,922	\$49,547	\$49,176	\$48,807	\$48,441	\$48,078	\$47,717
Fixed O&M	\$9,841	\$10,087	\$10,338	\$10,597	\$10,862	\$11,134	\$11,412	\$11,697	\$11,990
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$9,374	\$9,609	\$9,849	\$10,095	\$10,347	\$10,606	\$10,871	\$11,143	\$11,422
Land Cost	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$253	\$251	\$250	\$248	\$246	\$244	\$242	\$240	\$239
Operating Expenses	\$20,968	\$21,447	\$21,937	\$22,440	\$22,956	\$23,484	\$24,026	\$24,581	\$25,150
Interest Payment	\$21,115	\$19,493	\$17,726	\$15,799	\$13,699	\$11,410	\$8,915	\$6,196	\$3,231
Principal Payment	\$18,018	\$19,640	\$21,407	\$23,334	\$25,434	\$27,723	\$30,218	\$32,937	\$35,902
Debt Service	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133	\$39,133
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$8,596	\$9,359	\$10,259	\$11,308	\$12,521	\$13,913	\$15,500	\$17,301	\$19,336
State Income Tax (benefit)	\$517	\$563	\$617	\$680	\$753	\$837	\$932	\$1,041	\$1,163
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$8,079	\$8,796	\$9,641	\$10,628	\$11,768	\$13,076	\$14,568	\$16,260	\$18,173
Federal Income Tax (benefit)	\$2,828	\$3,079	\$3,375	\$3,720	\$4,119	\$4,577	\$5,099	\$5,691	\$6,360
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$3,345)	(\$3,641)	(\$3,992)	(\$4,400)	(\$4,872)	(\$5,413)	(\$6,031)	(\$6,732)	(\$7,523)
Net Cash Flow	(12,767)	(13,922)	(15,140)	(16,426)	(17,785)	(19,223)	(20,749)	(22,368)	(24,090)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$7,135
Fixed O&M (\$/kW)	\$80
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$10,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	24%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	14%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35.0%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$206.54

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2
Cost of Generation (\$/MWh)	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54
Operating Revenues	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118
Fixed O&M	\$40,000	\$41,000	\$42,025	\$43,076	\$44,153	\$45,256	\$46,388	\$47,547	\$48,736	\$49,955	\$51,203
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$24,972	\$25,597	\$26,237	\$26,893	\$27,565	\$28,254	\$28,960	\$29,684	\$30,426	\$31,187	\$31,967
Land Cost	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086
Operating Expenses	\$78,058	\$77,682	\$79,347	\$81,054	\$82,803	\$84,596	\$86,434	\$88,317	\$90,248	\$92,227	\$94,256
Interest Payment	\$112,376	\$110,179	\$107,785	\$105,175	\$102,331	\$99,230	\$95,850	\$92,167	\$88,151	\$83,774	\$79,004
Principal Payment	\$24,406	\$26,803	\$28,997	\$31,607	\$34,451	\$37,552	\$40,932	\$44,615	\$48,631	\$53,007	\$57,778
Debt Service	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782
Tax Depreciation - State	\$713,497	\$1,141,596	\$684,957	\$410,974	\$410,974	\$205,487	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$563,808	(\$1,112,339)	(\$654,971)	(\$380,085)	(\$378,990)	(\$172,195)	\$34,834	\$38,634	\$38,719	\$41,117	\$43,859
State Income Tax (benefit)	\$33,913	(\$66,907)	(\$39,397)	(\$22,862)	(\$22,796)	(\$10,358)	\$2,095	\$2,204	\$2,328	\$2,473	\$2,638
Tax Depreciation - Fed	\$606,473	\$970,356	\$582,214	\$349,328	\$349,328	\$174,664	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed	\$636,919	(\$874,192)	(\$512,831)	(\$295,577)	(\$294,547)	(\$131,014)	\$32,739	\$34,431	\$36,390	\$38,644	\$41,221
Federal Income Tax (benefit)	\$222,922	(\$305,967)	(\$179,491)	(\$103,452)	(\$103,092)	(\$45,855)	\$11,459	\$12,051	\$12,737	\$13,525	\$14,427
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$1,070,246										
State Tax Credit	\$1,248,820										
Net Taxes (due)	\$2,062,031	\$372,874	\$218,887	\$126,314	\$125,888	\$56,213	(\$13,554)	(\$14,254)	(\$15,065)	(\$15,998)	(\$17,065)
Net Cash Flow	2,318,866	2,066,310	375,529	219,877	125,597	123,421	51,953	(19,651)	(22,235)	(24,977)	(27,889)

Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 3,567,486
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 3,032,363
Fixed O&M Escalation	State depreciation basis \$ 3,567,486
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -766743.3603
Fuel Cost (\$/MBtu)	5 -748182.0426
Fuel Cost Escalation	slope 3712.263538
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2	1,051.2
Cost of Generation (\$/mWh)	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54	\$206.54
Operating Revenues	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118	\$217,118
Fixed O&M	\$52,483	\$53,786	\$55,140	\$56,519	\$57,932	\$59,380	\$60,865	\$62,386	\$63,946
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$32,766	\$33,585	\$34,425	\$35,285	\$36,167	\$37,072	\$37,998	\$38,948	\$39,922
Land Cost	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086	\$1,086
Operating Expenses	\$98,335	\$98,466	\$100,651	\$102,890	\$105,185	\$107,537	\$109,949	\$112,420	\$114,954
Interest Payment	\$73,804	\$68,136	\$61,958	\$55,223	\$47,883	\$39,882	\$31,161	\$21,655	\$11,294
Principal Payment	\$62,978	\$68,646	\$74,824	\$81,559	\$88,899	\$96,900	\$105,621	\$115,127	\$125,488
Debt Service	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782	\$136,782
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$46,980	\$50,516	\$54,510	\$59,005	\$64,050	\$69,699	\$76,008	\$83,043	\$90,871
State Income Tax (benefit)	\$2,826	\$3,039	\$3,279	\$3,549	\$3,853	\$4,192	\$4,572	\$4,995	\$5,466
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$44,154	\$47,478	\$51,231	\$55,456	\$60,198	\$65,506	\$71,436	\$78,048	\$85,405
Federal Income Tax (benefit)	\$15,454	\$16,617	\$17,931	\$19,410	\$21,069	\$22,927	\$25,003	\$27,317	\$29,892
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$18,280)	(\$19,656)	(\$21,210)	(\$22,959)	(\$24,922)	(\$27,120)	(\$29,575)	(\$32,312)	(\$35,358)
Net Cash Flow	(\$34,278)	(\$37,785)	(\$41,524)	(\$45,512)	(\$49,770)	(\$54,321)	(\$59,187)	(\$64,396)	(\$69,975)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.1
Capital Cost (\$/kW)	\$7,323
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$1,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	23%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	8.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	35.0%
No. of Systems (inverters)	5

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$193.30

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	201.5	200.0	198.5	197.0	195.5	194.0	192.6	191.1	189.7	188.3	186.9
Cost of Generation (\$/MWh)	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30
Operating Revenues	\$38,946	\$38,654	\$38,364	\$38,076	\$37,791	\$37,507	\$37,226	\$36,947	\$36,670	\$36,395	\$36,122
Fixed O&M	\$5,000	\$5,125	\$5,253	\$5,384	\$5,519	\$5,657	\$5,798	\$5,943	\$6,092	\$6,244	\$6,400
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$5,126	\$5,254	\$5,385	\$5,520	\$5,658	\$5,799	\$5,944	\$6,093	\$6,245	\$6,401	\$6,561
Land Cost	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$195	\$193	\$192	\$190	\$189	\$188	\$186	\$185	\$183	\$182	\$181
Operating Expenses	\$11,321	\$11,572	\$11,830	\$12,095	\$12,366	\$12,644	\$12,929	\$13,221	\$13,521	\$13,828	\$14,142
Interest Payment	\$23,066	\$22,615	\$22,124	\$21,588	\$21,004	\$20,368	\$19,674	\$18,918	\$18,094	\$17,195	\$16,218
Principal Payment	\$5,010	\$5,460	\$5,952	\$6,488	\$7,071	\$7,708	\$8,402	\$9,158	\$9,982	\$10,880	\$11,859
Debt Service	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076
Tax Depreciation - State	\$146,451	\$234,321	\$140,593	\$84,356	\$84,356	\$42,178	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$114,398	(\$229,855)	(\$136,183)	(\$79,962)	(\$79,935)	(\$37,682)	\$4,623	\$4,808	\$5,056	\$5,372	\$5,763
State Income Tax (benefit)	\$6,881	(\$13,826)	(\$8,191)	(\$4,810)	(\$4,808)	(\$2,267)	\$278	\$289	\$304	\$323	\$347
Tax Depreciation - Fed'l	\$124,483	\$189,173	\$119,504	\$71,702	\$71,702	\$35,851	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$129,484	(\$180,881)	(\$108,902)	(\$62,499)	(\$62,473)	(\$29,089)	\$4,345	\$4,519	\$4,751	\$5,049	\$5,417
Federal Income Tax (benefit)	\$45,320	(\$63,308)	(\$37,416)	(\$21,875)	(\$21,866)	(\$10,181)	\$1,521	\$1,582	\$1,663	\$1,767	\$1,898
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$219,676										
State Tax Credit	\$256,289										
Net Taxes (due)	\$423,765	\$77,134	\$45,607	\$26,684	\$26,674	\$12,448	(\$1,799)	(\$1,871)	(\$1,967)	(\$2,090)	(\$2,242)
Net Cash Flow	(\$475,965)	\$423,515	\$76,140	\$44,066	\$24,591	\$24,023	\$9,236	(\$5,577)	(\$6,220)	(\$6,893)	(\$7,599)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 732,254
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 622,416
Fixed O&M Escalation	State depreciation basis \$ 732,254
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -162143.04
Fuel Cost (\$/MBtu)	5 -157948.976
Fuel Cost Escalation	slope 838.8127993
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	185.5	184.1	182.7	181.3	180.0	178.6	177.3	175.9	174.6
Cost of Generation (\$/mWh)	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30	\$193.30
Operating Revenues	\$35,851	\$35,582	\$35,315	\$35,050	\$34,787	\$34,527	\$34,268	\$34,011	\$33,756
Fixed O&M	\$8,560	\$8,724	\$6,893	\$7,065	\$7,241	\$7,423	\$7,608	\$7,798	\$7,993
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$6,725	\$8,894	\$7,066	\$7,243	\$7,424	\$7,609	\$7,798	\$7,994	\$8,194
Land Cost	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$179	\$178	\$177	\$175	\$174	\$173	\$171	\$170	\$169
Operating Expenses	\$14,485	\$14,796	\$15,135	\$15,483	\$15,839	\$16,204	\$16,579	\$16,963	\$17,356
Interest Payment	\$15,149	\$13,985	\$12,717	\$11,335	\$9,828	\$8,186	\$6,396	\$4,445	\$2,318
Principal Payment	\$12,927	\$14,090	\$15,358	\$16,741	\$18,247	\$19,889	\$21,679	\$23,631	\$25,757
Debt Service	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076	\$28,076
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$6,237	\$8,801	\$7,463	\$8,233	\$9,120	\$10,136	\$11,293	\$12,603	\$14,081
State Income Tax (benefit)	\$375	\$409	\$449	\$495	\$549	\$610	\$679	\$758	\$847
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$5,862	\$8,392	\$7,014	\$7,737	\$8,571	\$9,526	\$10,613	\$11,845	\$13,234
Federal Income Tax (benefit)	\$2,052	\$2,237	\$2,455	\$2,708	\$3,000	\$3,334	\$3,715	\$4,146	\$4,632
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$2,427)	(\$2,646)	(\$2,904)	(\$3,203)	(\$3,549)	(\$3,944)	(\$4,394)	(\$4,904)	(\$5,479)
Net Cash Flow	(9,117)	(9,936)	(10,799)	(11,711)	(12,676)	(13,697)	(14,781)	(15,932)	(17,155)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.025
Capital Cost (\$/kW)	\$9,576
Fixed O&M (\$/kW)	\$80
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$500
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	24%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	35.0%
No. of Systems (inverters)	5
CapEx	\$ 500,000

Output	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$242.80

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6
Cost of Generation (\$/mWh)	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80
Operating Revenues	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762
Fixed O&M	\$2,000	\$2,050	\$2,101	\$2,154	\$2,208	\$2,263	\$2,319	\$2,377	\$2,437	\$2,498	\$2,560
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,676	\$1,718	\$1,761	\$1,805	\$1,850	\$1,896	\$1,943	\$1,992	\$2,042	\$2,093	\$2,145
Land Cost	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$64	\$64	\$64	\$64	\$64	\$64	\$64	\$64	\$64	\$64	\$64
Operating Expenses	\$4,240	\$4,331	\$4,426	\$4,522	\$4,621	\$4,723	\$4,827	\$4,933	\$5,042	\$5,154	\$5,269
Interest Payment	\$7,541	\$7,393	\$7,233	\$7,058	\$6,867	\$6,659	\$6,432	\$6,185	\$5,915	\$5,622	\$5,301
Principal Payment	\$1,638	\$1,785	\$1,946	\$2,121	\$2,312	\$2,520	\$2,747	\$2,994	\$3,263	\$3,557	\$3,877
Debt Service	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179
Tax Depreciation - State	\$47,878	\$76,605	\$45,963	\$27,578	\$27,578	\$13,789	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$36,890	(\$75,568)	(\$44,860)	(\$26,396)	(\$26,304)	(\$12,408)	\$1,503	\$1,644	\$1,804	\$1,986	\$2,191
State Income Tax (benefit)	\$2,219	(\$4,545)	(\$2,698)	(\$1,588)	(\$1,582)	(\$746)	\$90	\$99	\$109	\$119	\$132
Tax Depreciation - Fed1	\$40,696	\$65,114	\$39,069	\$23,441	\$23,441	\$11,721	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$41,853	(\$59,532)	(\$35,267)	(\$20,871)	(\$20,585)	(\$9,594)	\$1,413	\$1,545	\$1,696	\$1,867	\$2,060
Federal Income Tax (benefit)	\$14,649	(\$20,836)	(\$12,343)	(\$7,235)	(\$7,205)	(\$3,358)	\$495	\$541	\$593	\$653	\$721
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$71,817										
State Tax Credit	\$83,787										
Net Taxes (due)	\$138,737	\$25,382	\$15,042	\$8,823	\$8,767	\$4,104	(\$585)	(\$640)	(\$702)	(\$773)	(\$853)
Net Cash Flow	(\$155,604)	\$138,080	\$24,633	\$14,199	\$7,884	\$7,749	\$2,965	(\$1,828)	(\$1,990)	(\$2,161)	(\$2,344)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 239,391
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 203,482
Fixed O&M Escalation	State depreciation basis \$ 239,391
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -55651.82392
Fuel Cost (\$/MBtu)	5 -54505.8045
Fuel Cost Escalation	slope 229.2038833
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6	52.6
Cost of Generation (\$/mWh)	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80	\$242.80
Operating Revenues	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762	\$12,762
Fixed O&M	\$2,624	\$2,690	\$2,757	\$2,826	\$2,897	\$2,969	\$3,043	\$3,119	\$3,197
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,199	\$2,254	\$2,310	\$2,368	\$2,427	\$2,488	\$2,550	\$2,614	\$2,679
Land Cost	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$64	\$64	\$64	\$64	\$64	\$64	\$64	\$64	\$64
Operating Expenses	\$5,387	\$5,507	\$5,631	\$5,758	\$5,887	\$6,020	\$6,157	\$6,297	\$6,440
Interest Payment	\$4,952	\$4,572	\$4,158	\$3,706	\$3,213	\$2,676	\$2,091	\$1,453	\$758
Principal Payment	\$4,226	\$4,606	\$5,021	\$5,473	\$5,965	\$6,502	\$7,088	\$7,725	\$8,421
Debt Service	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179	\$9,179
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,423	\$2,682	\$2,973	\$3,299	\$3,661	\$4,065	\$4,514	\$5,012	\$5,564
State Income Tax (benefit)	\$148	\$161	\$179	\$198	\$220	\$245	\$272	\$301	\$335
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$2,277	\$2,521	\$2,795	\$3,100	\$3,441	\$3,821	\$4,242	\$4,711	\$5,229
Federal Income Tax (benefit)	\$797	\$882	\$978	\$1,085	\$1,204	\$1,337	\$1,485	\$1,649	\$1,830
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$943)	(\$1,044)	(\$1,157)	(\$1,283)	(\$1,425)	(\$1,582)	(\$1,758)	(\$1,950)	(\$2,165)
Net Cash Flow	(2,748)	(2,968)	(3,205)	(3,458)	(3,729)	(4,019)	(4,330)	(4,664)	(5,022)

Cost of Generation Calculator

All inputs are in blue.

CSP Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$6,996
Fixed O&M (\$/kW)	\$71
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$11
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$30,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	21%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	40%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35.0%	\$ 500,000
No. of Systems (inverters)	1	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$325.84

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8
Cost of Generation (\$/MWh)	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84
Operating Revenues	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708
Fixed O&M	\$35,500	\$36,388	\$37,297	\$38,230	\$39,185	\$40,165	\$41,169	\$42,198	\$43,253	\$44,335	\$45,443
Variable O&M	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118
Insurance	\$24,485	\$25,098	\$25,725	\$26,368	\$27,027	\$27,703	\$28,396	\$29,106	\$29,833	\$30,579	\$31,343
Land Cost	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499
Operating Expenses	\$101,802	\$103,101	\$104,839	\$106,214	\$107,829	\$109,484	\$111,181	\$112,920	\$114,703	\$116,530	\$118,403
Interest Payment	\$110,185	\$108,031	\$105,683	\$103,124	\$100,335	\$97,295	\$93,981	\$90,369	\$86,432	\$82,141	\$77,463
Principal Payment	\$23,930	\$26,084	\$28,431	\$30,990	\$33,778	\$36,820	\$40,133	\$43,745	\$47,682	\$51,974	\$56,652
Debt Service	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115
Tax Depreciation - State	\$699,584	\$1,119,335	\$671,601	\$402,981	\$402,981	\$201,480	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$111,863)	(\$1,030,759)	(\$582,215)	(\$312,591)	(\$311,417)	(\$108,552)	\$94,546	\$96,419	\$98,573	\$101,037	\$103,842
State Income Tax (benefit)	(\$6,717)	(\$62,000)	(\$35,020)	(\$18,802)	(\$18,732)	(\$6,529)	\$5,687	\$5,800	\$5,929	\$6,077	\$6,246
Tax Depreciation - Fed'l	\$594,647	\$951,435	\$570,861	\$342,517	\$342,517	\$171,258	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$8)	(\$800,859)	(\$446,454)	(\$233,345)	(\$232,241)	(\$71,800)	\$88,859	\$90,619	\$92,644	\$94,960	\$97,598
Federal Income Tax (benefit)	(\$3)	(\$320,343)	(\$178,582)	(\$93,338)	(\$92,896)	(\$28,720)	\$35,544	\$36,248	\$37,058	\$37,984	\$39,038
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$1,049,377										
State Tax Credit	\$500,000										
Net Taxes (due)	\$1,556,097	\$382,344	\$213,602	\$112,140	\$111,628	\$35,249	(\$41,230)	(\$42,047)	(\$42,987)	(\$44,061)	(\$45,285)
Net Cash Flow	(\$2,273,649)	\$1,620,088	\$444,836	\$274,557	\$171,520	\$169,393	\$91,359	\$113,182	\$10,626	\$7,904	\$5,002

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 3,497,922
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,973,234
Fixed O&M Escalation	State depreciation basis \$ 3,497,922
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -1206432.962
Fuel Cost (\$/MBtu)	5 -1187920.341
Fuel Cost Escalation	slope 3702.524269
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8	919.8
Cost of Generation (\$/MWh)	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84	\$325.84
Operating Revenues	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708	\$299,708
Fixed O&M	\$46,579	\$47,744	\$48,937	\$50,161	\$51,415	\$52,700	\$54,017	\$55,368	\$56,752
Variable O&M	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118	\$10,118
Insurance	\$32,127	\$32,930	\$33,753	\$34,597	\$35,462	\$36,349	\$37,258	\$38,189	\$39,144
Land Cost	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499	\$1,499
Operating Expenses	\$120,322	\$122,290	\$124,307	\$126,374	\$128,493	\$130,665	\$132,891	\$135,173	\$137,512
Interest Payment	\$72,365	\$66,807	\$60,749	\$54,147	\$46,949	\$39,104	\$30,554	\$21,233	\$11,074
Principal Payment	\$61,750	\$67,308	\$73,365	\$79,968	\$87,165	\$95,010	\$103,561	\$112,882	\$123,041
Debt Service	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115	\$134,115
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$107,021	\$110,611	\$114,652	\$119,188	\$124,266	\$129,939	\$136,263	\$143,302	\$151,122
State Income Tax (benefit)	\$6,437	\$6,653	\$6,896	\$7,169	\$7,475	\$7,816	\$8,196	\$8,620	\$9,090
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$100,584	\$103,958	\$107,756	\$112,018	\$116,791	\$122,123	\$128,067	\$134,682	\$142,032
Federal Income Tax (benefit)	\$40,234	\$41,583	\$43,102	\$44,807	\$46,716	\$48,849	\$51,227	\$53,873	\$56,813
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$46,671)	(\$46,236)	(\$49,999)	(\$51,976)	(\$54,181)	(\$56,665)	(\$59,423)	(\$62,493)	(\$65,903)
Net Cash Flow	(\$1,400)	(\$4,933)	(\$8,712)	(\$12,757)	(\$17,091)	(\$21,737)	(\$26,721)	(\$32,072)	(\$37,822)

Tier 1 PV Resources
20 kW

Tier 1 PV Project Scenarios					
	Low		High		
Inputs	Commercial A	Commercial B	Commercial C	Commercial D	Commercial E
Size (kW dc)	20	20	20	20	20
Production (kWh/kW dc)	1,500	1,475	1,450	1,425	1,400
Annual degradation (%/year)	0.75%	0.75%	0.75%	0.75%	0.75%
Curtailment (%/year)	0.00%	0.00%	0.00%	0.00%	0.00%
Contract life	20	20	20	20	20
System life	30	30	30	30	30
Capital Costs					
Modules (\$/watt dc)	\$ 2.25	\$ 2.38	\$ 2.50	\$ 2.63	\$ 2.75
Inverters (\$/watt dc)	\$ 0.45	\$ 0.48	\$ 0.50	\$ 0.53	\$ 0.55
Balance of System (\$/watt dc)	\$ 3.06	\$ 3.23	\$ 3.40	\$ 3.57	\$ 3.74
Meter (\$)	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 5.76	\$ 6.08	\$ 6.40	\$ 6.72	\$ 7.04
O&M Costs					
O&M (\$/kW/year)	\$ 22.50	\$ 23.75	\$ 25.00	\$ 26.25	\$ 27.50
O&M escalator (%/year)	2.5%	2.5%	2.5%	2.5%	2.5%
Other Costs					
Insurance (% CapEx/year)	0.600%	0.625%	0.650%	0.675%	0.700%
Land (\$/year)	\$ 200	\$ 200	\$ 200	\$ 200	\$ 200
Property Tax (\$/year)	\$ -	\$ -	\$ -	\$ -	\$ -
Type of System (Res./Comm.)	Comm.	Comm.	Comm.	Comm.	Comm.
Financing					
Debt percentage (%)	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%
Tax Incentives					
Federal ITC (%)	30%	30%	30%	30%	30%
State ITC (%)	24.5%	24.5%	24.5%	24.5%	24.5%
Accelerated depreciation	5-Yr MACRS	5-Yr MACRS	5-Yr MACRS	5-Yr MACRS	5-Yr MACRS
CF	17.12%	16.84%	16.55%	16.27%	15.98%
LCOE \$/MWh (w/ HI tax cred)	\$ 235	\$ 253	\$ 272	\$ 292	\$ 312

Land Cost	\$0.10 /ft2
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No Curtailment of such small projects

HECO assuming responsibility for meter cost

Lump all O&M into one category, because the systems are so small

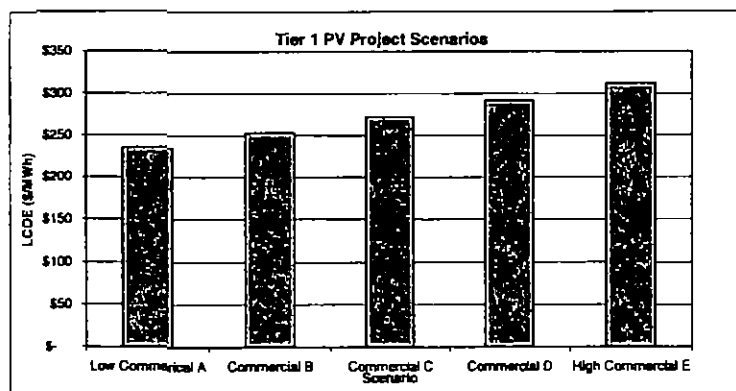
Assume all rooftop systems, so these are roof rentals

Property tax exemption in HI

For tax credit purposes

Note: no construction financing on such small projects

274 midpoint (FIT pricing proposal)



Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$5,760
Fixed O&M (\$/kW)	\$23
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	24.5%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$235.09

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	30.0	29.8	29.6	29.3	29.1	28.9	28.7	28.5	28.2	28.0	27.8
Cost of Generation (\$/mWh)	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09
Operating Revenues	\$7,053	\$7,000	\$6,947	\$6,895	\$6,844	\$6,792	\$6,741	\$6,691	\$6,641	\$6,591	\$6,541
Fixed O&M	\$450	\$461	\$473	\$485	\$497	\$509	\$522	\$535	\$548	\$562	\$576
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$691	\$708	\$726	\$744	\$763	\$782	\$802	\$822	\$842	\$863	\$885
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$35	\$35	\$35	\$34	\$34	\$34	\$34	\$33	\$33	\$33	\$33
Operating Expenses	\$1,378	\$1,405	\$1,434	\$1,463	\$1,494	\$1,525	\$1,557	\$1,590	\$1,624	\$1,658	\$1,694
Interest Payment	\$3,629	\$3,558	\$3,481	\$3,396	\$3,304	\$3,204	\$3,095	\$2,976	\$2,847	\$2,705	\$2,551
Principal Payment	\$788	\$859	\$936	\$1,021	\$1,112	\$1,213	\$1,322	\$1,441	\$1,570	\$1,712	\$1,866
Debt Service	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417
Tax Depreciation - State	\$23,040	\$38,864	\$22,118	\$13,271	\$13,271	\$6,636	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$7,231	(\$34,827)	(\$20,085)	(\$11,235)	(\$11,226)	(\$4,573)	\$2,089	\$2,125	\$2,170	\$2,227	\$2,297
State Income Tax (benefit)	\$435	(\$2,095)	(\$1,208)	(\$676)	(\$675)	(\$275)	\$126	\$128	\$131	\$134	\$138
Tax Depreciation - Fed1	\$19,584	\$31,334	\$18,801	\$11,280	\$11,280	\$5,640	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$10,253	(\$27,202)	(\$15,559)	(\$8,569)	(\$8,560)	(\$3,302)	\$1,963	\$1,997	\$2,040	\$2,083	\$2,158
Federal Income Tax (benefit)	\$3,588	(\$9,521)	(\$5,446)	(\$2,999)	(\$2,996)	(\$1,156)	\$687	\$699	\$714	\$733	\$755
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$34,560										
State Tax Credit	\$28,224										
Net Taxes (due)	\$58,761	\$11,616	\$6,654	\$3,675	\$3,671	\$1,431	(\$813)	(\$827)	(\$844)	(\$867)	(\$894)
Net Cash Flow	(\$4,880)	\$60,020	\$12,794	\$7,751	\$4,690	\$4,604	\$2,281	(\$46)	(\$143)	(\$245)	(\$351)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 115,200
Fixed O&M (\$/kW)	Fed1 depreciation basis \$ 97,920
Fixed O&M Escalation	State depreciation basis \$ 115,200
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -29382.39838
Fuel Cost (\$/MBtu)	5 -28737.91
Fuel Cost Escalation	slope 124.8976771
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	27.6	27.4	27.2	27.0	26.8	26.6	26.4	26.2	26.0
Cost of Generation (\$/mWh)	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09	\$235.09
Operating Revenues	\$6,492	\$6,444	\$6,395	\$6,347	\$6,300	\$6,252	\$6,206	\$6,159	\$6,113
Fixed O&M	\$590	\$605	\$620	\$636	\$652	\$668	\$685	\$702	\$719
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$907	\$930	\$953	\$977	\$1,001	\$1,026	\$1,052	\$1,078	\$1,105
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$32	\$32	\$32	\$32	\$31	\$31	\$31	\$31	\$31
Operating Expenses	\$1,730	\$1,767	\$1,805	\$1,844	\$1,884	\$1,925	\$1,967	\$2,011	\$2,055
Interest Payment	\$2,383	\$2,200	\$2,001	\$1,783	\$1,548	\$1,288	\$1,006	\$699	\$365
Principal Payment	\$2,034	\$2,217	\$2,416	\$2,634	\$2,871	\$3,129	\$3,411	\$3,718	\$4,052
Debt Service	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,379	\$2,476	\$2,589	\$2,720	\$2,869	\$3,039	\$3,232	\$3,449	\$3,693
State Income Tax (benefit)	\$143	\$149	\$156	\$164	\$173	\$183	\$194	\$207	\$222
Tax Depreciation - Fed1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$2,236	\$2,327	\$2,434	\$2,556	\$2,697	\$2,856	\$3,037	\$3,242	\$3,471
Federal Income Tax (benefit)	\$783	\$815	\$852	\$895	\$944	\$1,000	\$1,063	\$1,135	\$1,215
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$926)	(\$964)	(\$1,008)	(\$1,058)	(\$1,116)	(\$1,183)	(\$1,257)	(\$1,342)	(\$1,437)
Net Cash Flow	(\$580)	(\$704)	(\$834)	(\$972)	(\$1,118)	(\$1,272)	(\$1,436)	(\$1,611)	(\$1,796)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$6,080
Fixed O&M (\$/kW)	\$24
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.63%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (Inverters)	5
State Cap	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$253.24

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	29.5	29.3	29.1	28.8	28.6	28.4	28.2	28.0	27.8	27.6	27.4
Cost of Generation (\$/MWh)	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24
Operating Revenues	\$7,471	\$7,415	\$7,359	\$7,304	\$7,249	\$7,195	\$7,141	\$7,087	\$7,034	\$6,981	\$6,929
Fixed O&M	\$475	\$487	\$499	\$512	\$524	\$537	\$551	\$565	\$579	\$593	\$608
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$760	\$779	\$798	\$818	\$839	\$860	\$881	\$903	\$926	\$949	\$973
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$37	\$37	\$37	\$37	\$36	\$38	\$38	\$35	\$35	\$35	\$35
Operating Expenses	\$1,472	\$1,503	\$1,534	\$1,568	\$1,599	\$1,633	\$1,668	\$1,703	\$1,740	\$1,777	\$1,816
Interest Payment	\$3,830	\$3,756	\$3,674	\$3,585	\$3,488	\$3,382	\$3,267	\$3,142	\$3,006	\$2,856	\$2,693
Principal Payment	\$832	\$907	\$988	\$1,077	\$1,174	\$1,280	\$1,395	\$1,521	\$1,658	\$1,807	\$1,969
Debt Service	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662
Tax Depreciation - State	\$24,320	\$38,912	\$23,347	\$14,008	\$14,008	\$7,004	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$7,640	(\$38,758)	(\$21,187)	(\$11,856)	(\$11,847)	(\$4,825)	\$2,206	\$2,242	\$2,289	\$2,348	\$2,420
State Income Tax (benefit)	\$480	(\$2,211)	(\$1,275)	(\$713)	(\$713)	(\$290)	\$133	\$135	\$138	\$141	\$146
Tax Depreciation - Fed'l	\$20,672	\$33,075	\$19,845	\$11,907	\$11,907	\$5,954	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$10,828	(\$28,708)	(\$16,419)	(\$9,042)	(\$9,033)	(\$3,484)	\$2,073	\$2,107	\$2,152	\$2,207	\$2,275
Federal Income Tax (benefit)	\$3,790	(\$10,048)	(\$5,747)	(\$3,165)	(\$3,162)	(\$1,220)	\$726	\$738	\$753	\$772	\$796
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$36,480										
State Tax Credit	\$29,792										
Net Taxes (due)	\$62,023	\$12,259	\$7,022	\$3,878	\$3,874	\$1,510	(\$858)	(\$872)	(\$891)	(\$914)	(\$942)
Net Cash Flow	(\$9,040)	\$63,358	\$13,508	\$8,184	\$4,953	\$4,861	\$2,409	(\$48)	(\$151)	(\$259)	(\$372)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 121,600
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 103,360
Fixed O&M Escalation	State depreciation basis \$ 121,600
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -31101 77579
Fuel Cost (\$/MBtu)	5 -30487.69554
Fuel Cost Escalation	slope 122.8160491
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	27.2	27.0	26.7	26.5	26.3	26.2	28.0	25.8	25.6
Cost of Generation (\$/mWh)	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24	\$253.24
Operating Revenues	\$6,877	\$6,825	\$6,774	\$6,723	\$6,673	\$6,623	\$6,573	\$6,524	\$6,475
Fixed O&M	\$623	\$639	\$655	\$671	\$688	\$705	\$723	\$741	\$759
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$997	\$1,022	\$1,048	\$1,074	\$1,101	\$1,128	\$1,156	\$1,185	\$1,215
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$34	\$34	\$34	\$34	\$33	\$33	\$33	\$33	\$32
Operating Expenses	\$1,855	\$1,895	\$1,936	\$1,979	\$2,022	\$2,066	\$2,112	\$2,159	\$2,207
Interest Payment	\$2,516	\$2,322	\$2,112	\$1,882	\$1,632	\$1,359	\$1,062	\$738	\$385
Principal Payment	\$2,147	\$2,340	\$2,550	\$2,780	\$3,030	\$3,303	\$3,600	\$3,924	\$4,277
Debt Service	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,506	\$2,608	\$2,726	\$2,862	\$3,019	\$3,197	\$3,399	\$3,627	\$3,883
State Income Tax (benefit)	\$151	\$157	\$164	\$172	\$182	\$192	\$204	\$218	\$234
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$2,356	\$2,451	\$2,562	\$2,690	\$2,837	\$3,005	\$3,194	\$3,409	\$3,650
Federal Income Tax (benefit)	\$824	\$858	\$897	\$942	\$993	\$1,052	\$1,118	\$1,193	\$1,277
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$975)	(\$1,015)	(\$1,061)	(\$1,114)	(\$1,175)	(\$1,244)	(\$1,323)	(\$1,411)	(\$1,511)
Net Cash Flow	(\$616)	(\$747)	(\$885)	(\$1,031)	(\$1,186)	(\$1,350)	(\$1,524)	(\$1,708)	(\$1,905)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$6,400
Fixed O&M (\$/kW)	\$25
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.65%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		Capital Cost
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	24.5%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$272.15

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	29.0	28.8	28.6	28.4	28.1	27.9	27.7	27.5	27.3	27.1	26.9
Cost of Generation (\$/MWh)	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15
Operating Revenues	\$7,892	\$7,833	\$7,774	\$7,716	\$7,658	\$7,601	\$7,544	\$7,487	\$7,431	\$7,375	\$7,320
Fixed O&M	\$500	\$513	\$525	\$538	\$552	\$566	\$580	\$594	\$609	\$624	\$640
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$832	\$853	\$874	\$896	\$918	\$941	\$965	\$989	\$1,014	\$1,039	\$1,065
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$39	\$39	\$39	\$39	\$38	\$38	\$38	\$37	\$37	\$37	\$37
Operating Expenses	\$1,571	\$1,604	\$1,638	\$1,673	\$1,709	\$1,745	\$1,782	\$1,821	\$1,860	\$1,900	\$1,942
Interest Payment	\$4,032	\$3,953	\$3,867	\$3,774	\$3,672	\$3,560	\$3,439	\$3,307	\$3,163	\$3,006	\$2,835
Principal Payment	\$876	\$954	\$1,040	\$1,134	\$1,236	\$1,347	\$1,469	\$1,601	\$1,745	\$1,902	\$2,073
Debt Service	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908
Tax Depreciation - State	\$25,600	\$40,960	\$24,576	\$14,746	\$14,746	\$7,373	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$8,049	(\$38,685)	(\$22,307)	(\$12,476)	(\$12,468)	(\$5,077)	\$2,322	\$2,359	\$2,408	\$2,469	\$2,544
State Income Tax (benefit)	\$484	(\$2,327)	(\$1,342)	(\$750)	(\$750)	(\$305)	\$140	\$142	\$145	\$149	\$153
Tax Depreciation - Fed'l	\$21,760	\$34,816	\$20,890	\$12,534	\$12,534	\$6,267	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$11,405	(\$30,214)	(\$17,279)	(\$9,514)	(\$9,508)	(\$3,666)	\$2,183	\$2,218	\$2,263	\$2,321	\$2,391
Federal Income Tax (benefit)	\$3,992	(\$10,575)	(\$6,048)	(\$3,330)	(\$3,327)	(\$1,283)	\$764	\$776	\$792	\$812	\$837
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$38,400										
State Tax Credit	\$31,360										
Net Taxes (due)	\$65,284	\$12,902	\$7,389	\$4,080	\$4,077	\$1,589	(\$904)	(\$918)	(\$937)	(\$961)	(\$990)
Net Cash Flow	(\$3,200)	\$66,697	\$14,223	\$8,618	\$5,216	\$2,537	(\$50)	(\$159)	(\$274)	(\$393)	(\$519)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 128,000
Fixed O&M (\$/kW)	Fed1 depreciation basis \$ 108,800
Fixed O&M Escalation	State depreciation basis \$ 128,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -32857.66161
Fuel Cost (\$/MBtu)	5 -32253.9895
Fuel Cost Escalation	slope 120.7344212
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	26.7	26.5	26.3	26.1	25.9	25.7	25.5	25.3	25.1
Cost of Generation (\$/mWh)	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15	\$272.15
Operating Revenues	\$7,265	\$7,211	\$7,156	\$7,103	\$7,050	\$6,997	\$6,944	\$6,892	\$6,840
Fixed O&M	\$656	\$672	\$689	\$706	\$724	\$742	\$761	\$780	\$799
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,092	\$1,119	\$1,147	\$1,176	\$1,205	\$1,235	\$1,266	\$1,298	\$1,330
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$36	\$36	\$36	\$36	\$35	\$35	\$35	\$34	\$34
Operating Expenses	\$1,984	\$2,027	\$2,072	\$2,118	\$2,164	\$2,212	\$2,262	\$2,312	\$2,364
Interest Payment	\$2,648	\$2,445	\$2,223	\$1,981	\$1,718	\$1,431	\$1,118	\$777	\$405
Principal Payment	\$2,260	\$2,463	\$2,685	\$2,926	\$3,190	\$3,477	\$3,790	\$4,131	\$4,502
Debt Service	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,633	\$2,738	\$2,862	\$3,004	\$3,167	\$3,353	\$3,565	\$3,803	\$4,072
State Income Tax (benefit)	\$158	\$165	\$172	\$181	\$191	\$202	\$214	\$229	\$245
Tax Depreciation - Fed1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$2,475	\$2,574	\$2,689	\$2,823	\$2,977	\$3,152	\$3,350	\$3,574	\$3,827
Federal Income Tax (benefit)	\$866	\$901	\$941	\$988	\$1,042	\$1,103	\$1,173	\$1,251	\$1,339
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$1,024)	(\$1,066)	(\$1,113)	(\$1,169)	(\$1,232)	(\$1,305)	(\$1,387)	(\$1,480)	(\$1,584)
Net Cash Flow	(\$51)	(\$790)	(\$337)	(\$1,091)	(\$1,255)	(\$1,428)	(\$1,612)	(\$1,807)	(\$2,015)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$6,720
Fixed O&M (\$/kW)	\$26
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.68%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	16%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	24.5%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$291.86

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	28.5	28.3	28.1	27.9	27.7	27.4	27.2	27.0	26.8	26.6	26.4
Cost of Generation (\$/MWh)	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86
Operating Revenues	\$8,318	\$8,256	\$8,194	\$8,132	\$8,071	\$8,011	\$7,951	\$7,891	\$7,832	\$7,773	\$7,715
Fixed O&M	\$525	\$538	\$552	\$565	\$580	\$594	\$609	\$624	\$640	\$656	\$672
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$907	\$930	\$953	\$977	\$1,001	\$1,026	\$1,052	\$1,078	\$1,105	\$1,133	\$1,161
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$42	\$41	\$41	\$41	\$40	\$40	\$40	\$39	\$39	\$39	\$39
Operating Expenses	\$1,674	\$1,709	\$1,746	\$1,783	\$1,821	\$1,860	\$1,901	\$1,942	\$1,984	\$2,027	\$2,072
Interest Payment	\$4,234	\$4,151	\$4,061	\$3,962	\$3,855	\$3,738	\$3,611	\$3,472	\$3,321	\$3,156	\$2,976
Principal Payment	\$919	\$1,002	\$1,092	\$1,191	\$1,298	\$1,415	\$1,542	\$1,681	\$1,832	\$1,997	\$2,177
Debt Service	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153
Tax Depreciation - State	\$26,880	\$43,008	\$25,805	\$15,483	\$15,483	\$7,741	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$8,459	(\$40,612)	(\$23,417)	(\$13,096)	(\$13,088)	(\$5,330)	\$2,439	\$2,477	\$2,527	\$2,590	\$2,667
State Income Tax (benefit)	\$509	(\$2,443)	(\$1,409)	(\$788)	(\$787)	(\$321)	\$147	\$149	\$152	\$156	\$160
Tax Depreciation - Fed'l	\$22,848	\$36,557	\$21,934	\$13,160	\$13,160	\$6,580	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$11,982	(\$31,718)	(\$18,138)	(\$8,985)	(\$9,978)	(\$3,848)	\$2,292	\$2,328	\$2,375	\$2,434	\$2,506
Federal Income Tax (benefit)	\$4,194	(\$11,101)	(\$6,348)	(\$3,495)	(\$3,492)	(\$1,347)	\$802	\$815	\$831	\$852	\$877
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$40,320										
State Tax Credit	\$32,928										
Net Taxes (due)	\$68,546	\$13,544	\$7,757	\$4,283	\$4,280	\$1,667	(\$949)	(\$964)	(\$983)	(\$1,008)	(\$1,038)
Net Cash Flow	(\$7,360)	\$70,037	\$14,938	\$9,052	\$5,479	\$5,377	\$2,664	(\$52)	(\$168)	(\$289)	(\$415)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 134,400
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 114,240
Fixed O&M Escalation	State depreciation basis \$ 134,400
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -34830.05584
Fuel Cost (\$/MBtu)	5 -34036.79188
Fuel Cost Escalation	slope 118 6527932
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	28.2	26.0	25.8	25.6	25.5	25.3	25.1	24.9	24.7
Cost of Generation (\$/mWh)	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86	\$291.86
Operating Revenues	\$7,657	\$7,600	\$7,543	\$7,486	\$7,430	\$7,374	\$7,319	\$7,264	\$7,209
Fixed O&M	\$689	\$706	\$724	\$742	\$760	\$779	\$799	\$819	\$839
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,190	\$1,220	\$1,251	\$1,282	\$1,314	\$1,347	\$1,380	\$1,415	\$1,450
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$38	\$38	\$38	\$37	\$37	\$37	\$37	\$36	\$36
Operating Expenses	\$2,117	\$2,164	\$2,212	\$2,261	\$2,311	\$2,363	\$2,416	\$2,470	\$2,526
Interest Payment	\$2,780	\$2,567	\$2,334	\$2,080	\$1,804	\$1,503	\$1,174	\$816	\$425
Principal Payment	\$2,373	\$2,586	\$2,819	\$3,073	\$3,348	\$3,651	\$3,979	\$4,337	\$4,728
Debt Service	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,759	\$2,868	\$2,996	\$3,144	\$3,314	\$3,509	\$3,729	\$3,978	\$4,258
State Income Tax (benefit)	\$166	\$173	\$180	\$189	\$199	\$211	\$224	\$239	\$256
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$2,593	\$2,696	\$2,816	\$2,955	\$3,115	\$3,298	\$3,505	\$3,739	\$4,002
Federal Income Tax (benefit)	\$908	\$944	\$986	\$1,034	\$1,090	\$1,154	\$1,227	\$1,309	\$1,401
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$1,074)	(\$1,116)	(\$1,166)	(\$1,223)	(\$1,290)	(\$1,365)	(\$1,451)	(\$1,548)	(\$1,657)
Net Cash Flow	(687)	(634)	(588)	(542)	(495)	(447)	(397)	(345)	(291)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$7,040
Fixed O&M (\$/kW)	\$28
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	16%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	5
CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$312.42

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	28.0	27.8	27.6	27.4	27.2	27.0	26.8	26.6	26.4	26.2	26.0
Cost of Generation (\$/MWh)	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42
Operating Revenues	\$8,748	\$8,682	\$8,617	\$8,552	\$8,488	\$8,425	\$8,361	\$8,299	\$8,236	\$8,175	\$8,113
Fixed O&M	\$550	\$564	\$578	\$592	\$607	\$622	\$638	\$654	\$670	\$687	\$704
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$986	\$1,010	\$1,035	\$1,061	\$1,088	\$1,115	\$1,143	\$1,172	\$1,201	\$1,231	\$1,262
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$44	\$43	\$43	\$43	\$42	\$42	\$42	\$41	\$41	\$41	\$41
Operating Expenses	\$1,779	\$1,817	\$1,856	\$1,896	\$1,937	\$1,980	\$2,023	\$2,067	\$2,112	\$2,159	\$2,206
Interest Payment	\$4,435	\$4,349	\$4,254	\$4,151	\$4,039	\$3,916	\$3,783	\$3,638	\$3,479	\$3,306	\$3,118
Principal Payment	\$963	\$1,050	\$1,144	\$1,247	\$1,360	\$1,482	\$1,615	\$1,761	\$1,919	\$2,092	\$2,280
Debt Service	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398
Tax Depreciation - State	\$28,180	\$45,056	\$27,034	\$16,220	\$16,220	\$8,110	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$8,869	(\$42,540)	(\$24,527)	(\$13,715)	(\$13,708)	(\$5,581)	\$2,556	\$2,594	\$2,645	\$2,710	\$2,789
State Income Tax (benefit)	\$533	(\$2,559)	(\$1,475)	(\$825)	(\$825)	(\$336)	\$154	\$156	\$159	\$163	\$168
Tax Depreciation - Fed'l	\$23,936	\$38,298	\$22,979	\$13,787	\$13,787	\$6,894	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$12,560	(\$33,223)	(\$18,997)	(\$10,457)	(\$10,451)	(\$4,029)	\$2,402	\$2,438	\$2,486	\$2,547	\$2,621
Federal Income Tax (benefit)	\$4,396	(\$11,828)	(\$6,649)	(\$3,660)	(\$3,658)	(\$1,410)	\$841	\$853	\$870	\$891	\$917
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$42,240										
State Tax Credit	\$34,496										
Net Taxes (due)	\$71,807	\$14,187	\$8,124	\$4,485	\$4,482	\$1,746	(\$994)	(\$1,009)	(\$1,029)	(\$1,054)	(\$1,085)
Net Cash Flow	(\$1,520)	\$73,377	\$15,653	\$9,486	\$5,742	\$5,635	\$2,793	(\$54)	(\$176)	(\$303)	(\$437)

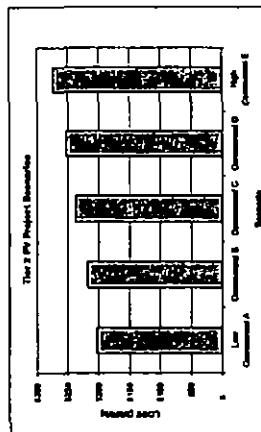
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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 140,800
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 119,680
Fixed O&M Escalation	State depreciation basis \$ 140,800
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -36418.95849
Fuel Cost (\$/MBtu)	5 -35838.10286
Fuel Cost Escalation	slope 116.5711653
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	25.8	25.6	25.4	25.2	25.0	24.8	24.6	24.5	24.3
Cost of Generation (\$/mWh)	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42	\$312.42
Operating Revenues	\$8,052	\$7,992	\$7,932	\$7,873	\$7,814	\$7,755	\$7,697	\$7,639	\$7,582
Fixed O&M	\$722	\$740	\$758	\$777	\$797	\$816	\$837	\$858	\$879
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,293	\$1,328	\$1,359	\$1,393	\$1,427	\$1,463	\$1,500	\$1,537	\$1,576
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$40	\$40	\$40	\$39	\$39	\$39	\$38	\$38	\$38
Operating Expenses	\$2,255	\$2,305	\$2,357	\$2,409	\$2,463	\$2,518	\$2,575	\$2,633	\$2,693
Interest Payment	\$2,913	\$2,889	\$2,445	\$2,180	\$1,890	\$1,574	\$1,230	\$855	\$446
Principal Payment	\$2,486	\$2,709	\$2,953	\$3,219	\$3,509	\$3,824	\$4,169	\$4,544	\$4,953
Debt Service	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,885	\$2,998	\$3,130	\$3,284	\$3,461	\$3,663	\$3,892	\$4,151	\$4,443
State Income Tax (benefit)	\$174	\$180	\$188	\$198	\$208	\$220	\$234	\$250	\$267
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$2,711	\$2,817	\$2,942	\$3,086	\$3,253	\$3,442	\$3,658	\$3,902	\$4,176
Federal Income Tax (benefit)	\$949	\$986	\$1,030	\$1,080	\$1,138	\$1,205	\$1,280	\$1,366	\$1,462
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$1,122)	(\$1,166)	(\$1,218)	(\$1,278)	(\$1,347)	(\$1,425)	(\$1,514)	(\$1,615)	(\$1,729)
Net Cash Flow	(\$1,122)	(\$1,166)	(\$1,041)	(\$1,213)	(\$1,394)	(\$1,587)	(\$1,791)	(\$2,008)	(\$2,238)

[illegible]

Key Inputs	A	B	C	D	E
Btu's (Btu)	800.0	800.0	600.0	600.0	800.0
Capacity Factor (%)	17.1%	18.8%	16.8%	16.8%	16.0%
Investment Cost (\$/kW)	\$	\$	\$	\$	\$
Interest Rate (%)	8.15	8.43	8.73	8.01	8.21
Operating Cost (\$/kW)	\$	\$	\$	\$	\$

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$5,132
Fixed O&M (\$/kW)	\$17
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.50%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	24.5%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$203.47

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	750.0	744.4	738.8	733.3	727.8	722.3	716.9	711.5	706.2	700.9	695.6
Cost of Generation (\$/MWh)	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47
Operating Revenues	\$152,602	\$151,457	\$150,321	\$149,194	\$148,075	\$146,964	\$145,862	\$144,768	\$143,682	\$142,605	\$141,535
Fixed O&M	\$8,500	\$8,713	\$8,930	\$9,154	\$9,382	\$9,617	\$9,857	\$10,104	\$10,356	\$10,615	\$10,881
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$12,830	\$13,151	\$13,480	\$13,817	\$14,162	\$14,516	\$14,879	\$15,251	\$15,632	\$16,023	\$16,423
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$763	\$757	\$752	\$746	\$740	\$735	\$729	\$724	\$718	\$713	\$708
Operating Expenses	\$27,093	\$27,621	\$28,161	\$28,716	\$29,285	\$29,868	\$30,466	\$31,079	\$31,707	\$32,351	\$33,012
Interest Payment	\$80,829	\$79,249	\$77,527	\$75,650	\$73,604	\$71,374	\$68,943	\$66,293	\$63,405	\$60,257	\$56,825
Principal Payment	\$17,555	\$19,135	\$20,857	\$22,734	\$24,780	\$27,010	\$29,441	\$32,091	\$34,879	\$38,127	\$41,558
Debt Service	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384
Tax Depreciation - State	\$513,200	\$821,120	\$492,672	\$295,603	\$295,603	\$147,802	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$160,150	(\$776,533)	(\$448,039)	(\$250,775)	(\$250,417)	(\$102,079)	\$46,454	\$47,396	\$48,570	\$49,997	\$51,698
State Income Tax (benefit)	\$9,633	(\$46,708)	(\$26,950)	(\$15,084)	(\$15,063)	(\$6,140)	\$2,794	\$2,851	\$2,922	\$3,007	\$3,110
Tax Depreciation - Fed1	\$436,220	\$697,952	\$418,771	\$251,263	\$251,263	\$125,631	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$227,497	(\$606,656)	(\$347,189)	(\$191,351)	(\$191,014)	(\$73,769)	\$43,659	\$44,546	\$45,649	\$46,989	\$48,588
Federal Income Tax (benefit)	\$79,824	(\$212,330)	(\$121,516)	(\$66,973)	(\$66,855)	(\$25,819)	\$15,281	\$15,591	\$15,977	\$16,446	\$17,006
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$769,800										
State Tax Credit	\$628,670										
Net Taxes (due)	\$1,309,213	\$259,038	\$148,466	\$82,057	\$81,917	\$31,959	(\$18,075)	(\$18,442)	(\$18,889)	(\$19,454)	(\$20,116)
Net Cash Flow	(\$1,667,900)	\$1,336,338	\$284,491	\$172,242	\$104,151	\$102,324	\$50,672	(\$1,062)	(\$3,136)	(\$5,307)	(\$7,584)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 2,566,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,181,100
Fixed O&M Escalation	State depreciation basis \$ 2,566,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -635319.3102
Fuel Cost (\$/MBtu)	5 -619707.1008
Fuel Cost Escalation	slope 3122.441927
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	690.4	685.2	680.1	675.0	669.9	664.9	659.9	655.0	650.0
Cost of Generation (\$/mWh)	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47	\$203.47
Operating Revenues	\$140,474	\$139,420	\$138,374	\$137,337	\$136,307	\$135,284	\$134,270	\$133,263	\$132,263
Fixed O&M	\$11,153	\$11,432	\$11,717	\$12,010	\$12,311	\$12,618	\$12,934	\$13,257	\$13,589
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$16,834	\$17,255	\$17,686	\$18,128	\$18,582	\$19,046	\$19,522	\$20,010	\$20,511
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$702	\$697	\$692	\$687	\$682	\$676	\$671	\$666	\$661
Operating Expenses	\$33,689	\$34,384	\$35,096	\$35,825	\$36,574	\$37,341	\$38,127	\$38,934	\$39,761
Interest Payment	\$53,085	\$49,008	\$44,564	\$39,721	\$34,441	\$28,686	\$22,413	\$15,576	\$8,123
Principal Payment	\$45,299	\$49,375	\$53,819	\$58,663	\$63,943	\$69,697	\$75,970	\$82,808	\$90,260
Debt Service	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$53,699	\$56,028	\$58,714	\$61,790	\$65,292	\$69,257	\$73,729	\$78,753	\$84,379
State Income Tax (benefit)	\$3,290	\$3,370	\$3,532	\$3,717	\$3,927	\$4,166	\$4,435	\$4,737	\$5,075
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$50,469	\$52,658	\$55,183	\$58,074	\$61,364	\$65,091	\$69,294	\$74,016	\$79,304
Federal Income Tax (benefit)	\$17,664	\$18,430	\$19,314	\$20,326	\$21,478	\$22,782	\$24,253	\$25,905	\$27,756
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$20,894)	(\$21,800)	(\$22,846)	(\$24,043)	(\$25,405)	(\$26,948)	(\$28,688)	(\$30,642)	(\$32,832)
Net Cash Flow	(\$12,494)	(\$15,146)	(\$17,950)	(\$20,915)	(\$24,056)	(\$27,388)	(\$30,929)	(\$34,697)	(\$38,713)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$5,426
Fixed O&M (\$/kW)	\$18
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.50%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	8.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		Net CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	24.5%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$218.59

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	737.5	732.0	726.5	721.0	715.6	710.3	704.9	699.6	694.4	689.2	684.0
Cost of Generation (\$/MWh)	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59
Operating Revenues	\$161,213	\$160,004	\$158,804	\$157,613	\$156,431	\$155,258	\$154,093	\$152,938	\$151,791	\$150,652	\$149,522
Fixed O&M	\$9,125	\$9,353	\$9,587	\$9,827	\$10,072	\$10,324	\$10,582	\$10,847	\$11,118	\$11,396	\$11,681
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$13,565	\$13,904	\$14,252	\$14,608	\$14,973	\$15,348	\$15,731	\$16,125	\$16,528	\$16,941	\$17,364
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$806	\$800	\$794	\$788	\$782	\$776	\$770	\$765	\$759	\$753	\$748
Operating Expenses	\$28,498	\$29,057	\$29,633	\$30,223	\$30,828	\$31,448	\$32,084	\$32,736	\$33,405	\$34,090	\$34,793
Interest Payment	\$85,460	\$83,789	\$81,968	\$79,984	\$77,820	\$75,462	\$72,892	\$70,091	\$67,037	\$63,709	\$60,081
Principal Payment	\$18,560	\$20,231	\$22,052	\$24,036	\$26,199	\$28,557	\$31,128	\$33,929	\$36,983	\$40,311	\$43,939
Debt Service	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020
Tax Depreciation - State	\$542,600	\$868,160	\$520,896	\$312,538	\$312,538	\$156,269	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$169,343	(\$821,002)	(\$473,693)	(\$265,131)	(\$264,755)	(\$107,921)	\$49,117	\$50,111	\$51,349	\$52,853	\$54,649
State Income Tax (benefit)	\$10,186	(\$49,383)	(\$28,493)	(\$15,948)	(\$15,925)	(\$6,491)	\$2,954	\$3,014	\$3,089	\$3,179	\$3,287
Tax Depreciation - Fed'l	\$461,210	\$737,936	\$442,762	\$265,657	\$265,657	\$132,828	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$240,547	(\$641,395)	(\$367,066)	(\$202,303)	(\$201,949)	(\$77,990)	\$46,183	\$47,097	\$48,260	\$49,874	\$51,362
Federal Income Tax (benefit)	\$84,191	(\$224,488)	(\$128,473)	(\$70,806)	(\$70,682)	(\$27,296)	\$16,157	\$16,484	\$16,891	\$17,388	\$17,977
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$813,900										
State Tax Credit	\$664,685										
Net Taxes (due)	\$1,384,208	\$273,871	\$156,966	\$86,754	\$86,607	\$33,788	(\$19,111)	(\$19,498)	(\$19,980)	(\$20,565)	(\$21,264)
Net Cash Flow	(\$1,763,450)	\$1,412,905	\$300,799	\$182,117	\$110,124	\$108,191	\$53,578	(\$1,122)	(\$3,316)	(\$5,613)	(\$8,023)

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Cost of Generation

All inputs are in blue.

Technology Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 2,713,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,306,050
Fixed O&M Escalation	State depreciation basis \$ 2,713,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -671172.0669
Fuel Cost (\$/MBtu)	5 -655820.0608
Fuel Cost Escalation	slope 3070.401228
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	678.9	673.8	668.7	663.7	658.7	653.8	648.9	644.0	639.2
Cost of Generation (\$/mWh)	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59	\$218.59
Operating Revenues	\$148,401	\$147,288	\$146,183	\$145,087	\$143,999	\$142,919	\$141,847	\$140,783	\$139,727
Fixed O&M	\$11,973	\$12,272	\$12,579	\$12,893	\$13,216	\$13,546	\$13,885	\$14,232	\$14,588
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$17,798	\$18,243	\$18,700	\$19,167	\$19,646	\$20,137	\$20,641	\$21,157	\$21,686
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$742	\$736	\$731	\$725	\$720	\$715	\$709	\$704	\$699
Operating Expenses	\$35,513	\$36,252	\$37,009	\$37,786	\$38,582	\$39,398	\$40,235	\$41,093	\$41,972
Interest Payment	\$56,126	\$51,816	\$47,117	\$41,996	\$36,414	\$30,330	\$23,697	\$16,468	\$8,589
Principal Payment	\$47,894	\$52,204	\$56,902	\$62,024	\$67,606	\$73,690	\$80,322	\$87,551	\$95,431
Debt Service	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$56,761	\$59,220	\$62,056	\$65,305	\$69,003	\$73,191	\$77,915	\$83,222	\$89,166
State Income Tax (benefit)	\$3,414	\$3,582	\$3,733	\$3,928	\$4,151	\$4,402	\$4,687	\$5,006	\$5,363
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$53,347	\$55,638	\$58,324	\$61,377	\$64,852	\$68,789	\$73,228	\$78,216	\$83,803
Federal Income Tax (benefit)	\$18,672	\$19,480	\$20,413	\$21,482	\$22,698	\$24,076	\$25,630	\$27,376	\$29,331
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$22,086)	(\$23,042)	(\$24,146)	(\$25,410)	(\$26,849)	(\$28,478)	(\$30,316)	(\$32,381)	(\$34,694)
Net Cash Flow	(\$13,218)	(\$16,026)	(\$18,992)	(\$22,129)	(\$25,452)	(\$28,978)	(\$32,724)	(\$36,711)	(\$40,959)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$5,720
Fixed O&M (\$/kW)	\$20
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.58%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	5
State Capital Grant	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$237.91

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	725.0	719.6	714.2	708.8	703.5	698.2	693.0	687.8	682.6	677.5	672.4
Cost of Generation (\$/MWh)	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91
Operating Revenues	\$172,483	\$171,189	\$169,905	\$168,631	\$167,366	\$166,111	\$164,865	\$163,629	\$162,402	\$161,184	\$159,975
Fixed O&M	\$9,750	\$9,994	\$10,244	\$10,500	\$10,762	\$11,031	\$11,307	\$11,590	\$11,879	\$12,176	\$12,481
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$16,445	\$16,856	\$17,278	\$17,709	\$18,152	\$18,606	\$19,071	\$19,548	\$20,037	\$20,538	\$21,051
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$862	\$856	\$850	\$843	\$837	\$831	\$824	\$818	\$812	\$806	\$800
Operating Expenses	\$32,057	\$32,706	\$33,371	\$34,052	\$34,751	\$35,468	\$36,202	\$36,956	\$37,728	\$38,520	\$39,332
Interest Payment	\$90,090	\$88,329	\$86,410	\$84,317	\$82,037	\$79,551	\$76,842	\$73,889	\$70,689	\$67,161	\$63,338
Principal Payment	\$19,566	\$21,327	\$23,246	\$25,339	\$27,619	\$30,105	\$32,814	\$35,767	\$38,987	\$42,495	\$46,320
Debt Service	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656
Tax Depreciation - State	\$572,000	\$915,200	\$549,120	\$329,472	\$329,472	\$164,736	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$179,036	(\$865,046)	(\$498,995)	(\$279,211)	(\$278,894)	(\$113,644)	\$51,821	\$52,784	\$54,004	\$55,503	\$57,307
State Income Tax (benefit)	\$10,769	(\$52,032)	(\$30,015)	(\$16,795)	(\$16,775)	(\$6,836)	\$3,117	\$3,175	\$3,248	\$3,339	\$3,447
Tax Depreciation - Fed1	\$486,200	\$777,920	\$466,752	\$280,051	\$280,051	\$140,026	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$254,067	(\$675,733)	(\$386,612)	(\$212,895)	(\$212,698)	(\$82,098)	\$48,704	\$49,609	\$50,756	\$52,164	\$53,860
Federal Income Tax (benefit)	\$88,923	(\$236,507)	(\$135,314)	(\$74,548)	(\$74,444)	(\$28,734)	\$17,046	\$17,363	\$17,764	\$18,258	\$18,851
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$858,000										
State Tax Credit	\$700,700										
Net Taxes (due)	\$1,459,008	\$288,539	\$165,329	\$91,343	\$91,220	\$35,570	(\$20,163)	(\$20,538)	(\$21,013)	(\$21,596)	(\$22,298)
Net Cash Flow	1,489,777	317,367	192,208	116,266	114,179	56,557	(1,157)	(3,521)	(5,995)	(8,588)	(11,311)

Cost of Generation

All inputs are in blue.

Technology Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 2,860,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,431,000
Fixed O&M Escalation	State depreciation basis \$ 2,860,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -718090.6191
Fuel Cost (\$/MBtu)	5 -702998.8164
Fuel Cost Escalation	slope 3018.38053
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	667.4	662.4	657.4	652.5	647.6	642.7	637.9	633.1	628.4
Cost of Generation (\$/mWh)	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91	\$237.91
Operating Revenues	\$158,775	\$157,584	\$156,402	\$155,229	\$154,065	\$152,909	\$151,763	\$150,624	\$149,495
Fixed O&M	\$12,793	\$13,113	\$13,440	\$13,776	\$14,121	\$14,474	\$14,836	\$15,207	\$15,587
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$21,577	\$22,117	\$22,670	\$23,236	\$23,817	\$24,413	\$25,023	\$25,649	\$26,290
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$794	\$788	\$782	\$776	\$770	\$765	\$759	\$753	\$747
Operating Expenses	\$40,164	\$41,017	\$41,892	\$42,789	\$43,708	\$44,651	\$45,618	\$46,609	\$47,624
Interest Payment	\$59,167	\$54,623	\$49,670	\$44,272	\$38,387	\$31,973	\$24,981	\$17,361	\$9,054
Principal Payment	\$50,489	\$55,033	\$59,986	\$65,384	\$71,269	\$77,683	\$84,675	\$92,295	\$100,602
Debt Service	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$59,444	\$81,943	\$64,840	\$68,168	\$71,969	\$76,285	\$81,164	\$86,655	\$92,816
State Income Tax (benefit)	\$3,578	\$3,726	\$3,900	\$4,100	\$4,329	\$4,589	\$4,882	\$5,212	\$5,583
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$55,868	\$58,218	\$60,940	\$64,068	\$67,640	\$71,697	\$76,282	\$81,443	\$87,234
Federal Income Tax (benefit)	\$19,554	\$20,378	\$21,329	\$22,424	\$23,674	\$25,094	\$26,699	\$28,505	\$30,532
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$23,129)	(\$24,102)	(\$25,229)	(\$26,524)	(\$28,003)	(\$29,682)	(\$31,581)	(\$33,717)	(\$36,115)
Net Cash Flow	(14,174)	(17,191)	(20,375)	(23,740)	(27,303)	(31,080)	(35,092)	(39,357)	(43,900)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$8,014
Fixed O&M (\$/kW)	\$21
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.55%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	16%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (Inverters)	5
CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$253.05

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	712.5	707.2	701.9	696.6	691.4	686.2	681.0	675.9	670.9	665.8	660.8
Cost of Generation (\$/MWh)	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05
Operating Revenues	\$180,300	\$178,947	\$177,605	\$176,273	\$174,951	\$173,639	\$172,337	\$171,044	\$169,762	\$168,488	\$167,225
Fixed O&M	\$10,375	\$10,634	\$10,900	\$11,173	\$11,452	\$11,738	\$12,032	\$12,333	\$12,641	\$12,957	\$13,281
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$16,539	\$16,952	\$17,376	\$17,810	\$18,255	\$18,712	\$19,180	\$19,659	\$20,151	\$20,654	\$21,171
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$901	\$895	\$888	\$881	\$875	\$868	\$862	\$855	\$849	\$842	\$836
Operating Expenses	\$32,815	\$33,481	\$34,164	\$34,864	\$35,582	\$36,318	\$37,073	\$37,847	\$38,640	\$39,454	\$40,288
Interest Payment	\$94,721	\$92,869	\$90,851	\$88,651	\$86,254	\$83,640	\$80,791	\$77,686	\$74,302	\$70,613	\$66,592
Principal Payment	\$20,572	\$22,423	\$24,441	\$26,641	\$29,039	\$31,652	\$34,501	\$37,606	\$40,990	\$44,680	\$48,701
Debt Service	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292
Tax Depreciation - State	\$601,400	\$962,240	\$577,344	\$346,406	\$346,406	\$173,203	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$188,079	(\$909,643)	(\$524,754)	(\$293,649)	(\$293,291)	(\$119,522)	\$54,472	\$55,511	\$56,819	\$58,422	\$60,345
State Income Tax (benefit)	\$11,313	(\$54,715)	(\$31,564)	(\$17,663)	(\$17,641)	(\$7,189)	\$3,277	\$3,339	\$3,418	\$3,514	\$3,630
Tax Depreciation - Fed'l	\$511,190	\$817,904	\$490,742	\$294,445	\$294,445	\$147,223	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$266,976	(\$710,592)	(\$406,588)	(\$224,025)	(\$223,688)	(\$86,353)	\$51,196	\$52,172	\$53,402	\$54,908	\$56,716
Federal Income Tax (benefit)	\$93,442	(\$248,707)	(\$142,306)	(\$78,409)	(\$78,291)	(\$30,223)	\$17,919	\$18,260	\$18,691	\$19,218	\$19,850
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$902,100										
State Tax Credit	\$736,715										
Net Taxes (due)	\$1,534,060	\$303,422	\$173,870	\$96,072	\$95,932	\$37,413	(\$21,195)	(\$21,599)	(\$22,108)	(\$22,732)	(\$23,480)
Net Cash Flow	(\$1,954,550)	\$1,566,253	\$333,596	\$202,019	\$122,188	\$120,009	\$59,441	(\$1,223)	(\$3,694)	(\$6,279)	(\$8,989)

Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 3,007,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,555,950
Fixed O&M Escalation	State depreciation basis \$ 3,007,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -750633.9549
Fuel Cost (\$/MBtu)	5 -735802.3558
Fuel Cost Escalation	slope 2966.319831
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	655.9	651.0	646.1	641.2	636.4	631.6	626.9	622.2	617.5
Cost of Generation (\$/mWh)	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05	\$253.05
Operating Revenues	\$165,970	\$164,726	\$163,490	\$162,264	\$161,047	\$159,839	\$158,640	\$157,451	\$156,270
Fixed O&M	\$13,613	\$13,953	\$14,302	\$14,660	\$15,026	\$15,402	\$15,787	\$16,181	\$16,586
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$21,700	\$22,242	\$22,799	\$23,368	\$23,953	\$24,551	\$25,165	\$25,794	\$26,439
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$830	\$824	\$817	\$811	\$805	\$799	\$793	\$787	\$781
Operating Expenses	\$41,143	\$42,019	\$42,918	\$43,839	\$44,784	\$45,752	\$46,745	\$47,763	\$48,807
Interest Payment	\$62,208	\$57,431	\$52,223	\$46,547	\$40,360	\$33,616	\$26,265	\$18,253	\$9,520
Principal Payment	\$53,084	\$57,861	\$63,069	\$68,745	\$74,832	\$81,676	\$89,027	\$97,039	\$105,773
Debt Service	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$62,619	\$65,275	\$68,349	\$71,877	\$75,903	\$80,470	\$85,630	\$91,434	\$97,944
State Income Tax (benefit)	\$3,767	\$3,926	\$4,111	\$4,323	\$4,566	\$4,840	\$5,151	\$5,500	\$5,891
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$58,853	\$61,349	\$64,238	\$67,554	\$71,337	\$75,630	\$80,479	\$85,935	\$92,052
Federal Income Tax (benefit)	\$20,598	\$21,472	\$22,483	\$23,644	\$24,968	\$26,471	\$28,168	\$30,077	\$32,218
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$24,365)	(\$25,399)	(\$26,594)	(\$27,967)	(\$29,634)	(\$31,311)	(\$33,318)	(\$35,577)	(\$38,110)
Net Cash Flow	(14,829)	(17,984)	(21,314)	(24,835)	(28,563)	(32,516)	(36,715)	(41,182)	(45,939)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$6,308
Fixed O&M (\$/kW)	\$22
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	16%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	8%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	24.5%
No. of Systems (inverters)	5
State CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$272.80

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	700.0	694.8	689.5	684.4	679.2	674.1	669.1	664.1	659.1	654.1	649.2
Cost of Generation (\$/mWh)	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80
Operating Revenues	\$190,957	\$189,524	\$188,103	\$186,692	\$185,292	\$183,902	\$182,523	\$181,154	\$179,796	\$178,447	\$177,109
Fixed O&M	\$11,000	\$11,275	\$11,557	\$11,846	\$12,142	\$12,445	\$12,757	\$13,076	\$13,402	\$13,737	\$14,081
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$18,924	\$19,397	\$19,882	\$20,379	\$20,889	\$21,411	\$21,946	\$22,495	\$23,057	\$23,633	\$24,224
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$955	\$948	\$941	\$933	\$926	\$920	\$913	\$906	\$899	\$892	\$886
Operating Expenses	\$35,879	\$36,620	\$37,379	\$38,158	\$38,957	\$39,776	\$40,615	\$41,476	\$42,358	\$43,263	\$44,191
Interest Payment	\$99,351	\$97,409	\$95,282	\$92,985	\$90,470	\$87,729	\$84,741	\$81,484	\$77,934	\$74,065	\$69,847
Principal Payment	\$21,577	\$23,519	\$25,636	\$27,943	\$30,458	\$33,199	\$36,187	\$39,444	\$42,994	\$46,864	\$51,081
Debt Service	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928
Tax Depreciation - State	\$630,800	\$1,009,280	\$605,568	\$363,341	\$363,341	\$181,670	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$197,657	(\$953,784)	(\$550,137)	(\$307,792)	(\$307,476)	(\$125,273)	\$57,167	\$58,194	\$59,503	\$61,119	\$63,071
State Income Tax (benefit)	\$11,889	(\$57,370)	(\$33,091)	(\$18,514)	(\$18,495)	(\$7,535)	\$3,439	\$3,500	\$3,579	\$3,676	\$3,794
Tax Depreciation - Fed	\$536,180	\$857,888	\$514,733	\$308,840	\$308,840	\$154,420	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed	\$280,388	(\$745,022)	(\$426,211)	(\$234,777)	(\$234,480)	(\$90,487)	\$53,728	\$54,694	\$55,924	\$57,443	\$59,277
Federal Income Tax (benefit)	\$98,136	(\$260,758)	(\$149,174)	(\$82,172)	(\$82,068)	(\$31,870)	\$18,805	\$19,143	\$19,573	\$20,105	\$20,747
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$946,200										
State Tax Credit	\$772,730										
Net Taxes (due)	\$1,608,905	\$318,128	\$182,264	\$100,686	\$100,563	\$39,206	(\$22,243)	(\$22,643)	(\$23,152)	(\$23,781)	(\$24,541)
Net Cash Flow	(2,050,100)	1,643,055	350,104	212,060	128,291	125,969	62,404	(1,264)	(3,893)	(6,644)	(9,526)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 3,154,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,680,900
Fixed O&M Escalation	State depreciation basis \$ 3,154,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -785001.4414
Fuel Cost (\$/MBtu)	5 -780430.0457
Fuel Cost Escalation	slope 2914.279132
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	644.4	639.5	634.7	630.0	625.3	620.6	615.9	611.3	606.7
Cost of Generation (\$/mWh)	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80	\$272.80
Operating Revenues	\$175,780	\$174,462	\$173,154	\$171,855	\$170,566	\$169,287	\$168,017	\$166,757	\$165,506
Fixed O&M	\$14,433	\$14,794	\$15,164	\$15,543	\$15,931	\$16,330	\$16,738	\$17,156	\$17,585
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$24,830	\$25,451	\$26,087	\$26,739	\$27,408	\$28,093	\$28,795	\$29,515	\$30,253
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$879	\$872	\$866	\$859	\$853	\$846	\$840	\$834	\$828
Operating Expenses	\$45,142	\$46,117	\$47,116	\$48,141	\$49,192	\$50,269	\$51,373	\$52,505	\$53,666
Interest Payment	\$65,250	\$60,238	\$54,776	\$48,823	\$42,333	\$35,260	\$27,549	\$19,145	\$9,985
Principal Payment	\$55,679	\$60,690	\$66,152	\$72,106	\$78,595	\$85,669	\$93,379	\$101,783	\$110,943
Debt Service	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$65,389	\$68,107	\$71,281	\$74,891	\$79,041	\$83,758	\$89,095	\$95,107	\$101,856
State Income Tax (benefit)	\$3,933	\$4,097	\$4,286	\$4,505	\$4,754	\$5,038	\$5,359	\$5,721	\$6,127
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$61,456	\$64,010	\$66,975	\$70,386	\$74,287	\$78,720	\$83,736	\$89,386	\$95,729
Federal Income Tax (benefit)	\$21,510	\$22,404	\$23,441	\$24,635	\$26,000	\$27,552	\$29,307	\$31,285	\$33,505
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$25,443)	(\$26,500)	(\$27,727)	(\$29,140)	(\$30,755)	(\$32,590)	(\$34,667)	(\$37,006)	(\$39,632)
Net Cash Flow	(15,732)	(18,083)	(22,619)	(26,354)	(30,309)	(34,501)	(38,951)	(43,682)	(48,719)

Tier 1 PV Resources
20 kW

	Scenario				
	Low		High		
Inputs	Commercial A	Commercial B	Commercial C	Commercial D	Commercial E
Size (kW dc)	20	20	20	20	20
Production (kWh/kW dc)	1,500	1,475	1,450	1,425	1,400
Annual degradation (%/year)	0.75%	0.75%	0.75%	0.75%	0.75%
Curtailment (%/year)	0.00%	0.00%	0.00%	0.00%	0.00%
Contract life	20	20	20	20	20
System life	30	30	30	30	30
Capital Costs					
Modules (\$/watt dc)	\$ 2.25	\$ 2.38	\$ 2.50	\$ 2.63	\$ 2.75
Inverters (\$/watt dc)	\$ 0.45	\$ 0.48	\$ 0.50	\$ 0.53	\$ 0.55
Balance of System (\$/watt dc)	\$ 3.08	\$ 3.23	\$ 3.40	\$ 3.57	\$ 3.74
Meter (\$)	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 5.78	\$ 6.08	\$ 6.40	\$ 6.72	\$ 7.04
O&M Costs					
O&M (\$/kW/year)	\$ 22.50	\$ 23.75	\$ 25.00	\$ 26.25	\$ 27.50
O&M escalator (%/year)	2.5%	2.5%	2.5%	2.5%	2.5%
Other Costs					
Insurance (% CapEx/year)	0.600%	0.625%	0.650%	0.675%	0.700%
Land (\$/year)	\$ 200	\$ 200	\$ 200	\$ 200	\$ 200
Property Tax (\$/year)	\$ -	\$ -	\$ -	\$ -	\$ -
Type of System (Res./Comm.)	Comm.	Comm.	Comm.	Comm.	Comm.
Financing					
Debt percentage (%)	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%
Tax Incentives					
Federal ITC (%)	30%	30%	30%	30%	30%
State ITC (%)	35.0%	35.0%	35.0%	35.0%	35.0%
Accelerated depreciation	5-Yr MACRS	5-Yr MACRS	5-Yr MACRS	5-Yr MACRS	5-Yr MACRS
CF	17.12%	16.84%	16.55%	16.27%	15.98%
LCOE \$/MWh (w/ HI tax cred)	\$ 187	\$ 202	\$ 217	\$ 233	\$ 250

Land Cost	\$0.10 /ft2
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No Curtailment of such small projects

HECO assuming responsibility for meter cost

Lump all O&M into one category, because the systems are so small

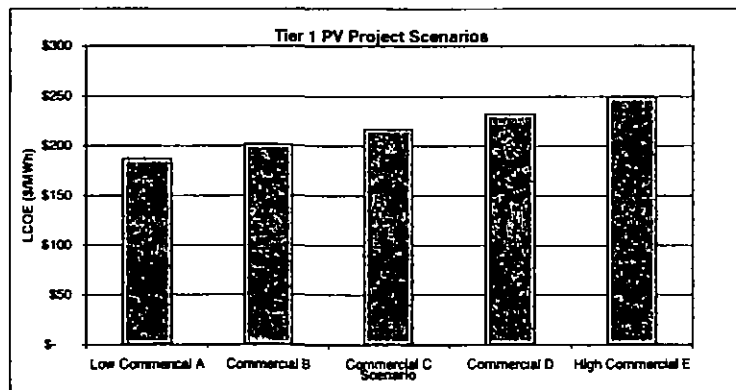
Assume all rooftop systems, so these are roof rentals

Property tax exemption in HI

For tax credit purposes

Note: no construction financing on such small projects

218 midpoint (FIT pricing proposal)



Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$5,760
Fixed O&M (\$/kW)	\$23
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35%	\$ 500,000
No. of Systems (Inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$187.07

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	30.0	29.8	29.6	29.3	29.1	28.9	28.7	28.5	28.2	28.0	27.8
Cost of Generation (\$/MWh)	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07
Operating Revenues	\$5,612	\$5,570	\$5,528	\$5,487	\$5,446	\$5,405	\$5,364	\$5,324	\$5,284	\$5,245	\$5,205
Fixed O&M	\$450	\$461	\$473	\$485	\$497	\$509	\$522	\$535	\$548	\$562	\$576
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$691	\$708	\$726	\$744	\$763	\$782	\$802	\$822	\$842	\$863	\$885
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$28	\$28	\$28	\$27	\$27	\$27	\$27	\$27	\$26	\$26	\$26
Operating Expenses	\$1,369	\$1,398	\$1,427	\$1,456	\$1,487	\$1,518	\$1,550	\$1,583	\$1,617	\$1,651	\$1,687
Interest Payment	\$3,629	\$3,558	\$3,481	\$3,396	\$3,304	\$3,204	\$3,095	\$2,978	\$2,847	\$2,705	\$2,551
Principal Payment	\$788	\$859	\$936	\$1,021	\$1,112	\$1,213	\$1,322	\$1,441	\$1,570	\$1,712	\$1,866
Debt Service	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417
Tax Depreciation - State	\$23,040	\$36,864	\$22,118	\$13,271	\$13,271	\$6,636	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$17,894	(\$36,249)	(\$21,497)	(\$12,637)	(\$12,617)	(\$5,953)	\$719	\$765	\$821	\$888	\$967
State Income Tax (benefit)	\$1,076	(\$2,180)	(\$1,293)	(\$760)	(\$759)	(\$358)	\$43	\$46	\$49	\$53	\$58
Tax Depreciation - Fed1	\$19,584	\$31,334	\$18,801	\$11,280	\$11,280	\$5,640	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$20,274	(\$28,539)	(\$16,886)	(\$9,888)	(\$9,867)	(\$4,600)	\$676	\$719	\$771	\$834	\$909
Federal Income Tax (benefit)	\$7,096	(\$9,989)	(\$5,910)	(\$3,460)	(\$3,453)	(\$1,610)	\$236	\$252	\$270	\$292	\$318
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$34,560										
State Tax Credit	\$40,320										
Net Taxes (due)	\$66,708	\$12,169	\$7,203	\$4,220	\$4,212	\$1,968	(\$280)	(\$298)	(\$319)	(\$345)	(\$376)
Net Cash Flow	(\$74,880)	\$66,534	\$11,925	\$6,888	\$3,834	\$3,754	\$1,438	(\$883)	(\$974)	(\$1,069)	(\$1,169)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 115,200
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 97,920
Fixed O&M Escalation	State depreciation basis \$ 115,200
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -23364.93337
Fuel Cost (\$/MBtu)	5 -22740.44498
Fuel Cost Escalation	slope 124.8976771
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	27.8	27.4	27.2	27.0	26.8	26.6	26.4	26.2	26.0
Cost of Generation (\$/mWh)	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07	\$187.07
Operating Revenues	\$5,166	\$5,127	\$5,089	\$5,051	\$5,013	\$4,975	\$4,938	\$4,901	\$4,864
Fixed O&M	\$590	\$605	\$620	\$636	\$652	\$668	\$685	\$702	\$719
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$907	\$930	\$953	\$977	\$1,001	\$1,026	\$1,052	\$1,078	\$1,105
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$26	\$26	\$25	\$25	\$25	\$25	\$25	\$25	\$24
Operating Expenses	\$1,723	\$1,760	\$1,799	\$1,838	\$1,878	\$1,919	\$1,961	\$2,004	\$2,049
Interest Payment	\$2,383	\$2,200	\$2,001	\$1,783	\$1,546	\$1,288	\$1,006	\$699	\$365
Principal Payment	\$2,034	\$2,217	\$2,416	\$2,634	\$2,871	\$3,129	\$3,411	\$3,718	\$4,052
Debt Service	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417	\$4,417
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,060	\$1,167	\$1,290	\$1,430	\$1,589	\$1,788	\$1,971	\$2,197	\$2,451
State Income Tax (benefit)	\$64	\$70	\$78	\$86	\$96	\$106	\$119	\$132	\$147
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$996	\$1,097	\$1,212	\$1,344	\$1,493	\$1,662	\$1,852	\$2,065	\$2,303
Federal Income Tax (benefit)	\$349	\$384	\$424	\$470	\$523	\$582	\$648	\$723	\$806
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$412)	(\$454)	(\$502)	(\$556)	(\$618)	(\$688)	(\$767)	(\$855)	(\$954)
Net Cash Flow	(1,386)	(1,504)	(1,628)	(1,760)	(1,900)	(2,049)	(2,207)	(2,375)	(2,555)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$6,080
Fixed O&M (\$/kW)	\$24
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.63%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$201.69

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	29.5	29.3	29.1	28.8	28.6	28.4	28.2	28.0	27.8	27.6	27.4
Cost of Generation (\$/MWh)	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69
Operating Revenues	\$5,850	\$5,905	\$5,861	\$5,817	\$5,773	\$5,730	\$5,687	\$5,645	\$5,602	\$5,560	\$5,518
Fixed O&M	\$475	\$487	\$499	\$512	\$524	\$537	\$551	\$565	\$579	\$593	\$608
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$760	\$779	\$798	\$818	\$839	\$860	\$881	\$903	\$926	\$949	\$973
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$30	\$30	\$29	\$29	\$29	\$29	\$28	\$28	\$28	\$28	\$28
Operating Expenses	\$1,465	\$1,495	\$1,527	\$1,559	\$1,592	\$1,626	\$1,661	\$1,696	\$1,733	\$1,770	\$1,808
Interest Payment	\$3,830	\$3,756	\$3,674	\$3,585	\$3,488	\$3,382	\$3,267	\$3,142	\$3,005	\$2,856	\$2,693
Principal Payment	\$832	\$907	\$988	\$1,077	\$1,174	\$1,280	\$1,395	\$1,521	\$1,658	\$1,807	\$1,969
Debt Service	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662
Tax Depreciation - State	\$24,320	\$38,912	\$23,347	\$14,008	\$14,008	\$7,004	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$18,895	(\$38,258)	(\$22,687)	(\$13,335)	(\$13,315)	(\$6,282)	\$759	\$807	\$865	\$935	\$1,017
State Income Tax (benefit)	\$1,137	(\$2,301)	(\$1,365)	(\$802)	(\$801)	(\$378)	\$46	\$49	\$52	\$56	\$61
Tax Depreciation - Fed	\$20,672	\$33,075	\$19,845	\$11,907	\$11,907	\$5,954	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed	\$21,406	(\$30,120)	(\$17,820)	(\$10,432)	(\$10,413)	(\$4,854)	\$714	\$758	\$813	\$878	\$956
Federal Income Tax (benefit)	\$7,492	(\$10,542)	(\$6,237)	(\$3,651)	(\$3,644)	(\$1,699)	\$250	\$265	\$284	\$307	\$335
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$36,480										
State Tax Credit	\$42,560										
Net Taxes (due)	\$70,411	\$12,843	\$7,602	\$4,453	\$4,445	\$2,077	(\$295)	(\$314)	(\$336)	(\$364)	(\$396)
Net Cash Flow	(\$9,040)	\$70,234	\$12,591	\$7,274	\$4,049	\$3,964	(\$1,519)	(\$931)	(\$1,028)	(\$1,129)	(\$1,236)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 121,600
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 103,360
Fixed O&M Escalation	State depreciation basis \$ 121,600
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -24771.11828
Fuel Cost (\$/MBtu)	5 -24157.03803
Fuel Cost Escalation	slope 122.8160491
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	27.2	27.0	26.7	26.5	26.3	26.2	26.0	25.8	25.6
Cost of Generation (\$/mWh)	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69	\$201.69
Operating Revenues	\$5,477	\$5,436	\$5,395	\$5,355	\$5,315	\$5,275	\$5,235	\$5,196	\$5,157
Fixed O&M	\$623	\$639	\$655	\$671	\$688	\$705	\$723	\$741	\$759
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$997	\$1,022	\$1,048	\$1,074	\$1,101	\$1,128	\$1,156	\$1,185	\$1,215
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$27	\$27	\$27	\$27	\$27	\$26	\$26	\$26	\$26
Operating Expenses	\$1,848	\$1,888	\$1,929	\$1,972	\$2,015	\$2,060	\$2,105	\$2,152	\$2,200
Interest Payment	\$2,516	\$2,322	\$2,112	\$1,882	\$1,632	\$1,359	\$1,062	\$738	\$385
Principal Payment	\$2,147	\$2,340	\$2,550	\$2,780	\$3,030	\$3,303	\$3,600	\$3,924	\$4,277
Debt Service	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662	\$4,662
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,114	\$1,225	\$1,354	\$1,501	\$1,667	\$1,856	\$2,068	\$2,306	\$2,572
State Income Tax (benefit)	\$67	\$74	\$81	\$90	\$100	\$112	\$124	\$139	\$155
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$1,047	\$1,152	\$1,272	\$1,410	\$1,587	\$1,744	\$1,943	\$2,167	\$2,417
Federal Income Tax (benefit)	\$366	\$403	\$445	\$494	\$548	\$610	\$680	\$758	\$848
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$433)	(\$477)	(\$527)	(\$584)	(\$649)	(\$722)	(\$805)	(\$897)	(\$1,001)
Net Cash Flow	(1,466)	(1,591)	(1,723)	(1,863)	(2,012)	(2,169)	(2,337)	(2,516)	(2,706)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$6,400
Fixed O&M (\$/kW)	\$25
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.65%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		State Capital
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35%	\$ 500,000
No. of Systems (Inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$216.95

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	29.0	28.8	28.6	28.4	28.1	27.9	27.7	27.5	27.3	27.1	26.9
Cost of Generation (\$/MWh)	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95
Operating Revenues	\$6,292	\$6,244	\$6,198	\$6,151	\$6,105	\$6,059	\$6,014	\$5,969	\$5,924	\$5,879	\$5,835
Fixed O&M	\$500	\$513	\$525	\$538	\$552	\$566	\$580	\$594	\$609	\$624	\$640
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$832	\$853	\$874	\$896	\$918	\$941	\$965	\$989	\$1,014	\$1,039	\$1,065
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$31	\$31	\$31	\$31	\$31	\$30	\$30	\$30	\$30	\$29	\$29
Operating Expenses	\$1,563	\$1,597	\$1,630	\$1,665	\$1,701	\$1,737	\$1,775	\$1,813	\$1,853	\$1,893	\$1,934
Interest Payment	\$4,032	\$3,953	\$3,867	\$3,774	\$3,672	\$3,560	\$3,439	\$3,307	\$3,163	\$3,006	\$2,835
Principal Payment	\$876	\$954	\$1,040	\$1,134	\$1,236	\$1,347	\$1,469	\$1,601	\$1,745	\$1,902	\$2,073
Debt Service	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908
Tax Depreciation - State	\$25,600	\$40,960	\$24,576	\$14,746	\$14,746	\$7,373	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$19,896	(\$40,265)	(\$23,876)	(\$14,033)	(\$14,013)	(\$6,611)	\$800	\$849	\$909	\$981	\$1,067
State Income Tax (benefit)	\$1,197	(\$2,422)	(\$1,436)	(\$844)	(\$843)	(\$398)	\$48	\$51	\$55	\$59	\$64
Tax Depreciation - Fed'l	\$21,760	\$34,816	\$20,890	\$12,534	\$12,534	\$6,267	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$22,539	(\$31,699)	(\$18,754)	(\$10,977)	(\$10,958)	(\$5,108)	\$752	\$798	\$854	\$922	\$1,002
Federal Income Tax (benefit)	\$7,889	(\$11,095)	(\$6,584)	(\$3,842)	(\$3,835)	(\$1,788)	\$263	\$279	\$289	\$323	\$351
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$38,400										
State Tax Credit	\$44,800										
Net Taxes (due)	\$74,114	\$13,517	\$8,000	\$4,686	\$4,678	\$2,185	(\$311)	(\$330)	(\$354)	(\$382)	(\$415)
Net Cash Flow	(\$3,200)	\$73,935	\$13,257	\$7,659	\$4,264	\$4,175	\$1,600	(\$980)	(\$1,082)	(\$1,190)	(\$1,303)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 128,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 108,800
Fixed O&M Escalation	State depreciation basis \$ 128,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -26193.8116
Fuel Cost (\$/MBtu)	5 -25590.13949
Fuel Cost Escalation	slope 120.7344212
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	26.7	26.5	26.3	26.1	25.9	25.7	25.5	25.3	25.1
Cost of Generation (\$/mWh)	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95	\$216.95
Operating Revenues	\$5,792	\$5,748	\$5,705	\$5,662	\$5,620	\$5,578	\$5,536	\$5,494	\$5,453
Fixed O&M	\$656	\$672	\$689	\$706	\$724	\$742	\$761	\$780	\$799
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,092	\$1,119	\$1,147	\$1,176	\$1,205	\$1,235	\$1,266	\$1,298	\$1,330
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$29	\$29	\$29	\$28	\$28	\$28	\$28	\$27	\$27
Operating Expenses	\$1,977	\$2,020	\$2,065	\$2,110	\$2,157	\$2,205	\$2,254	\$2,305	\$2,357
Interest Payment	\$2,648	\$2,445	\$2,223	\$1,981	\$1,718	\$1,431	\$1,118	\$777	\$405
Principal Payment	\$2,260	\$2,463	\$2,685	\$2,926	\$3,190	\$3,477	\$3,790	\$4,131	\$4,502
Debt Service	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908	\$4,908
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,167	\$1,283	\$1,417	\$1,571	\$1,745	\$1,941	\$2,163	\$2,412	\$2,691
State Income Tax (benefit)	\$70	\$77	\$85	\$94	\$105	\$117	\$130	\$145	\$162
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$1,097	\$1,206	\$1,332	\$1,476	\$1,640	\$1,825	\$2,033	\$2,267	\$2,529
Federal Income Tax (benefit)	\$384	\$422	\$466	\$517	\$574	\$639	\$712	\$794	\$885
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$454)	(\$499)	(\$551)	(\$611)	(\$679)	(\$755)	(\$842)	(\$939)	(\$1,047)
Net Cash Flow	(1,547)	(1,679)	(1,819)	(1,967)	(2,124)	(2,291)	(2,468)	(2,657)	(2,858)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$6,720
Fixed O&M (\$/kW)	\$26
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.68%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	16%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35%	\$ 500,000
No. of Systems (Inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$232.89

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	28.5	28.3	28.1	27.9	27.7	27.4	27.2	27.0	26.8	26.6	26.4
Cost of Generation (\$/MWh)	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89
Operating Revenues	\$6,637	\$6,588	\$6,538	\$6,489	\$6,440	\$6,392	\$6,344	\$6,297	\$6,249	\$6,203	\$6,156
Fixed O&M	\$525	\$538	\$552	\$565	\$580	\$594	\$609	\$624	\$640	\$656	\$672
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$907	\$930	\$953	\$977	\$1,001	\$1,026	\$1,052	\$1,078	\$1,105	\$1,133	\$1,161
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$33	\$33	\$33	\$32	\$32	\$32	\$32	\$31	\$31	\$31	\$31
Operating Expenses	\$1,665	\$1,701	\$1,737	\$1,775	\$1,813	\$1,852	\$1,893	\$1,934	\$1,976	\$2,020	\$2,064
Interest Payment	\$4,234	\$4,151	\$4,061	\$3,962	\$3,855	\$3,738	\$3,611	\$3,472	\$3,321	\$3,156	\$2,976
Principal Payment	\$919	\$1,002	\$1,092	\$1,191	\$1,298	\$1,415	\$1,542	\$1,681	\$1,832	\$1,997	\$2,177
Debt Service	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153
Tax Depreciation - State	\$26,880	\$43,008	\$25,805	\$15,483	\$15,483	\$7,741	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$20,898	(\$42,272)	(\$25,065)	(\$14,731)	(\$14,711)	(\$6,940)	\$841	\$890	\$952	\$1,027	\$1,116
State Income Tax (benefit)	\$1,257	(\$2,543)	(\$1,508)	(\$886)	(\$885)	(\$417)	\$51	\$54	\$57	\$62	\$67
Tax Depreciation - Fed	\$22,848	\$36,557	\$21,934	\$13,160	\$13,160	\$6,580	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed	\$23,673	(\$33,278)	(\$19,688)	(\$11,522)	(\$11,503)	(\$5,361)	\$790	\$837	\$895	\$965	\$1,048
Federal Income Tax (benefit)	\$8,286	(\$11,647)	(\$6,890)	(\$4,033)	(\$4,026)	(\$1,878)	\$276	\$293	\$313	\$338	\$367
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$40,320										
State Tax Credit	\$47,040										
Net Taxes (due)	\$77,817	\$14,190	\$8,398	\$4,919	\$4,911	\$2,294	(\$327)	(\$346)	(\$370)	(\$400)	(\$434)
Net Cash Flow	(\$7,360)	\$77,636	\$13,924	\$8,046	\$4,480	\$4,385	\$1,681	(\$1,029)	(\$1,137)	(\$1,250)	(\$1,370)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions (\$/yr)	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 134,400
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 114,240
Fixed O&M Escalation	State depreciation basis \$ 134,400
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -27633.01333
Fuel Cost (\$/MBtu)	5 -27038.74937
Fuel Cost Escalation	slope 118.6527932
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	26.2	26.0	25.8	25.6	25.5	25.3	25.1	24.9	24.7
Cost of Generation (\$/mWh)	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89	\$232.89
Operating Revenues	\$6,110	\$6,064	\$6,019	\$5,973	\$5,929	\$5,884	\$5,840	\$5,796	\$5,753
Fixed O&M	\$689	\$706	\$724	\$742	\$760	\$779	\$799	\$819	\$839
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,190	\$1,220	\$1,251	\$1,282	\$1,314	\$1,347	\$1,380	\$1,415	\$1,450
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$31	\$30	\$30	\$30	\$30	\$29	\$29	\$29	\$29
Operating Expenses	\$2,110	\$2,156	\$2,204	\$2,254	\$2,304	\$2,356	\$2,408	\$2,463	\$2,518
Interest Payment	\$2,780	\$2,567	\$2,334	\$2,080	\$1,804	\$1,503	\$1,174	\$816	\$425
Principal Payment	\$2,373	\$2,586	\$2,819	\$3,073	\$3,349	\$3,651	\$3,979	\$4,337	\$4,728
Debt Service	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153	\$5,153
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,220	\$1,341	\$1,480	\$1,639	\$1,821	\$2,026	\$2,258	\$2,518	\$2,809
State Income Tax (benefit)	\$73	\$81	\$89	\$98	\$110	\$122	\$136	\$151	\$169
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$1,146	\$1,260	\$1,391	\$1,541	\$1,711	\$1,904	\$2,122	\$2,366	\$2,640
Federal Income Tax (benefit)	\$401	\$441	\$487	\$539	\$599	\$668	\$743	\$828	\$924
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$475)	(\$522)	(\$576)	(\$638)	(\$708)	(\$788)	(\$878)	(\$980)	(\$1,093)
Net Cash Flow	(\$1,628)	(\$1,767)	(\$1,915)	(\$2,071)	(\$2,237)	(\$2,413)	(\$2,600)	(\$2,799)	(\$3,012)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$7,040
Fixed O&M (\$/kW)	\$28
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$200
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	16%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$249.54

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	28.0	27.8	27.6	27.4	27.2	27.0	26.8	26.6	26.4	26.2	26.0
Cost of Generation (\$/mWh)	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54
Operating Revenues	\$6,987	\$6,935	\$6,883	\$6,831	\$6,780	\$6,729	\$6,678	\$6,628	\$6,579	\$6,529	\$6,480
Fixed O&M	\$550	\$564	\$578	\$592	\$607	\$622	\$638	\$654	\$670	\$687	\$704
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$986	\$1,010	\$1,035	\$1,061	\$1,088	\$1,115	\$1,143	\$1,172	\$1,201	\$1,231	\$1,262
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$35	\$35	\$34	\$34	\$34	\$34	\$33	\$33	\$33	\$33	\$32
Operating Expenses	\$1,771	\$1,809	\$1,848	\$1,888	\$1,929	\$1,971	\$2,014	\$2,058	\$2,104	\$2,150	\$2,198
Interest Payment	\$4,435	\$4,349	\$4,254	\$4,151	\$4,039	\$3,916	\$3,783	\$3,638	\$3,479	\$3,306	\$3,118
Principal Payment	\$963	\$1,050	\$1,144	\$1,247	\$1,360	\$1,482	\$1,615	\$1,761	\$1,919	\$2,092	\$2,280
Debt Service	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398
Tax Depreciation - State	\$28,180	\$45,056	\$27,034	\$16,220	\$16,220	\$8,110	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$21,901	(\$44,279)	(\$28,253)	(\$15,428)	(\$15,408)	(\$7,269)	\$881	\$932	\$996	\$1,073	\$1,164
State Income Tax (benefit)	\$1,317	(\$2,663)	(\$1,579)	(\$928)	(\$927)	(\$437)	\$53	\$56	\$80	\$65	\$70
Tax Depreciation - Fed'l	\$23,936	\$38,298	\$22,979	\$13,787	\$13,787	\$6,894	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$24,808	(\$34,857)	(\$20,619)	(\$12,067)	(\$12,048)	(\$5,615)	\$828	\$876	\$936	\$1,008	\$1,094
Federal Income Tax (benefit)	\$8,683	(\$12,200)	(\$7,217)	(\$4,223)	(\$4,217)	(\$1,965)	\$290	\$307	\$328	\$353	\$383
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$42,240										
State Tax Credit	\$49,280										
Net Taxes (due)	\$81,520	\$14,863	\$8,796	\$5,151	\$5,144	\$2,402	(\$343)	(\$363)	(\$387)	(\$417)	(\$453)
Net Cash Flow	(\$91,520)	\$81,338	\$14,591	\$8,432	\$4,696	\$1,762	(\$1,077)	(\$1,191)	(\$1,311)	(\$1,437)	(\$1,569)

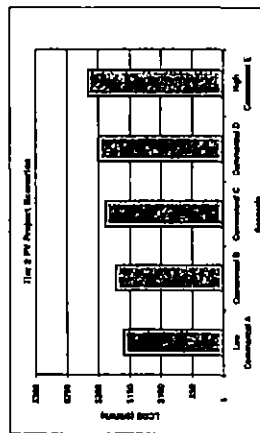
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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 140,800
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 119,680
Fixed O&M Escalation	State depreciation basis \$ 140,800
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -29088.72348
Fuel Cost (\$/MBtu)	5 -28505.86765
Fuel Cost Escalation	slope 116.5711653
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	25.8	25.6	25.4	25.2	25.0	24.8	24.6	24.5	24.3
Cost of Generation (\$/mWh)	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54	\$249.54
Operating Revenues	\$6,432	\$6,383	\$6,338	\$6,288	\$6,241	\$6,194	\$6,148	\$6,102	\$6,056
Fixed O&M	\$722	\$740	\$758	\$777	\$797	\$816	\$837	\$858	\$879
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,293	\$1,326	\$1,359	\$1,393	\$1,427	\$1,463	\$1,500	\$1,537	\$1,576
Land Cost	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$32	\$32	\$32	\$31	\$31	\$31	\$31	\$31	\$30
Operating Expenses	\$2,247	\$2,297	\$2,349	\$2,401	\$2,455	\$2,511	\$2,567	\$2,626	\$2,685
Interest Payment	\$2,913	\$2,689	\$2,445	\$2,180	\$1,890	\$1,574	\$1,230	\$855	\$446
Principal Payment	\$2,486	\$2,709	\$2,953	\$3,219	\$3,509	\$3,824	\$4,169	\$4,544	\$4,953
Debt Service	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398	\$5,398
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,272	\$1,397	\$1,542	\$1,707	\$1,896	\$2,109	\$2,350	\$2,621	\$2,925
State Income Tax (benefit)	\$77	\$84	\$93	\$103	\$114	\$127	\$141	\$158	\$176
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$1,195	\$1,313	\$1,449	\$1,605	\$1,782	\$1,983	\$2,209	\$2,464	\$2,749
Federal Income Tax (benefit)	\$418	\$460	\$507	\$562	\$624	\$694	\$773	\$862	\$962
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$495)	(\$544)	(\$600)	(\$664)	(\$738)	(\$821)	(\$915)	(\$1,020)	(\$1,138)
Net Cash Flow	(1,709)	(1,856)	(2,011)	(2,176)	(2,350)	(2,536)	(2,733)	(2,942)	(3,166)

[illegible]

Cary Imports		A	B	C	D	E
Size (M)		500.0	500.0	500.0	500.0	500.0
Capacity Factor (%)		17.1%	16.9%	16.9%	16.5%	16.0%
Installed Cost (\$/M)		\$	\$	\$	\$	\$
		5.13	5.43	5.72	6.01	6.31

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$5,132
Fixed O&M (\$/kW)	\$17
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.50%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35%	\$ 500,000
No. of Systems (inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$160.69

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	750.0	744.4	738.8	733.3	727.8	722.3	716.9	711.5	706.2	700.9	695.6
Cost of Generation (\$/MWh)	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69
Operating Revenues	\$120,514	\$119,610	\$118,713	\$117,823	\$116,939	\$116,062	\$115,191	\$114,327	\$113,470	\$112,619	\$111,774
Fixed O&M	\$8,500	\$8,713	\$8,930	\$9,154	\$9,382	\$9,617	\$9,857	\$10,104	\$10,356	\$10,615	\$10,881
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$12,830	\$13,151	\$13,480	\$13,817	\$14,162	\$14,516	\$14,879	\$15,251	\$15,632	\$16,023	\$16,423
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$603	\$598	\$594	\$589	\$585	\$580	\$576	\$572	\$567	\$563	\$559
Operating Expenses	\$26,933	\$27,461	\$28,003	\$28,559	\$29,129	\$29,713	\$30,312	\$30,926	\$31,556	\$32,201	\$32,863
Interest Payment	\$80,829	\$79,249	\$77,527	\$75,650	\$73,604	\$71,374	\$68,943	\$66,293	\$63,405	\$60,257	\$56,825
Principal Payment	\$17,555	\$18,135	\$20,857	\$22,734	\$24,780	\$27,010	\$29,441	\$32,091	\$34,979	\$38,127	\$41,558
Debt Service	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384
Tax Depreciation - State	\$513,200	\$821,120	\$492,672	\$295,603	\$295,603	\$147,802	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$397,852	(\$808,220)	(\$479,489)	(\$281,990)	(\$281,397)	(\$132,827)	\$15,936	\$17,108	\$18,509	\$20,161	\$22,086
State Income Tax (benefit)	\$23,919	(\$48,614)	(\$28,841)	(\$16,962)	(\$16,926)	(\$7,990)	\$959	\$1,029	\$1,113	\$1,213	\$1,328
Tax Depreciation - Fed1	\$436,220	\$697,952	\$418,771	\$251,263	\$251,263	\$125,631	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$450,713	(\$636,438)	(\$376,747)	(\$220,688)	(\$220,131)	(\$102,667)	\$14,978	\$16,079	\$17,398	\$18,948	\$20,757
Federal Income Tax (benefit)	\$157,750	(\$222,753)	(\$131,862)	(\$77,241)	(\$77,048)	(\$35,933)	\$5,242	\$5,628	\$6,089	\$6,632	\$7,265
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$769,800										
State Tax Credit	\$898,100										
Net Taxes (due)	\$1,486,231	\$271,368	\$160,703	\$94,202	\$93,972	\$43,923	(\$6,201)	(\$6,657)	(\$7,202)	(\$7,845)	(\$8,594)
Net Cash Flow	(\$1,667,900)	\$1,481,429	\$265,133	\$153,029	\$85,082	\$83,398	\$31,888	(\$19,705)	(\$21,639)	(\$23,671)	(\$25,811)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 2,566,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,181,100
Fixed O&M Escalation	State depreciation basis \$ 2,566,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -501729.942
Fuel Cost (\$/MBtu)	5 -486117.7324
Fuel Cost Escalation	slope 3122.441927
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	690.4	685.2	680.1	675.0	669.9	664.9	659.9	655.0	650.0
Cost of Generation (\$/mWh)	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69	\$160.69
Operating Revenues	\$110,936	\$110,104	\$109,278	\$108,459	\$107,645	\$106,838	\$106,037	\$105,241	\$104,452
Fixed O&M	\$11,153	\$11,432	\$11,717	\$12,010	\$12,311	\$12,618	\$12,934	\$13,257	\$13,589
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$16,834	\$17,255	\$17,686	\$18,128	\$18,582	\$19,046	\$19,522	\$20,010	\$20,511
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$555	\$551	\$548	\$542	\$538	\$534	\$530	\$526	\$522
Operating Expenses	\$33,541	\$34,237	\$34,950	\$35,681	\$36,430	\$37,199	\$37,986	\$38,794	\$39,621
Interest Payment	\$53,085	\$49,008	\$44,564	\$39,721	\$34,441	\$28,686	\$22,413	\$15,576	\$8,123
Principal Payment	\$45,299	\$49,375	\$53,819	\$58,663	\$63,943	\$69,697	\$75,970	\$82,808	\$90,260
Debt Service	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384	\$98,384
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$24,309	\$28,859	\$29,764	\$33,057	\$36,774	\$40,953	\$45,637	\$50,871	\$56,707
State Income Tax (benefit)	\$1,462	\$1,616	\$1,790	\$1,988	\$2,212	\$2,463	\$2,745	\$3,060	\$3,411
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$22,847	\$25,243	\$27,973	\$31,069	\$34,562	\$38,490	\$42,892	\$47,812	\$53,296
Federal Income Tax (benefit)	\$7,997	\$8,835	\$9,791	\$10,874	\$12,097	\$13,471	\$15,012	\$16,734	\$18,654
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$9,459)	(\$10,451)	(\$11,581)	(\$12,862)	(\$14,309)	(\$15,935)	(\$17,757)	(\$19,794)	(\$22,065)
Net Cash Flow	(30,448)	(32,967)	(35,636)	(38,468)	(41,477)	(44,679)	(48,091)	(51,730)	(55,618)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$5,426
Fixed O&M (\$/kW)	\$18
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.50%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	35%
No. of Systems (inverters)	5
CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$172.59

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	737.5	732.0	726.5	721.0	715.6	710.3	704.9	699.6	694.4	689.2	684.0
Cost of Generation (\$/MWh)	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59
Operating Revenues	\$127,287	\$126,333	\$125,385	\$124,445	\$123,511	\$122,585	\$121,666	\$120,753	\$119,848	\$118,949	\$118,057
Fixed O&M	\$9,125	\$9,353	\$9,587	\$9,827	\$10,072	\$10,324	\$10,582	\$10,847	\$11,118	\$11,396	\$11,681
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$13,565	\$13,904	\$14,252	\$14,608	\$14,973	\$15,348	\$15,731	\$16,125	\$16,528	\$16,941	\$17,364
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$636	\$632	\$627	\$622	\$618	\$613	\$608	\$604	\$599	\$595	\$590
Operating Expenses	\$28,326	\$28,889	\$29,466	\$30,057	\$30,663	\$31,285	\$31,922	\$32,575	\$33,245	\$33,931	\$34,635
Interest Payment	\$85,460	\$83,789	\$81,968	\$79,984	\$77,820	\$75,482	\$72,892	\$70,091	\$67,037	\$63,709	\$60,081
Principal Payment	\$18,560	\$20,231	\$22,052	\$24,036	\$26,199	\$28,557	\$31,128	\$33,929	\$36,883	\$40,311	\$43,939
Debt Service	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020
Tax Depreciation - State	\$542,800	\$888,160	\$520,896	\$312,538	\$312,538	\$156,269	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$420,451	(\$854,505)	(\$508,945)	(\$298,133)	(\$297,510)	(\$140,431)	\$16,852	\$18,087	\$19,566	\$21,309	\$23,340
State Income Tax (benefit)	\$25,290	(\$51,398)	(\$30,493)	(\$17,933)	(\$17,895)	(\$8,447)	\$1,014	\$1,088	\$1,177	\$1,282	\$1,404
Tax Depreciation - Fed'l	\$461,210	\$737,936	\$442,762	\$265,657	\$265,657	\$132,828	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$476,551	(\$672,883)	(\$398,318)	(\$233,320)	(\$232,734)	(\$108,543)	\$15,838	\$18,999	\$18,389	\$20,027	\$21,937
Federal Income Tax (benefit)	\$186,793	(\$235,509)	(\$139,411)	(\$81,662)	(\$81,457)	(\$37,990)	\$5,543	\$5,850	\$6,436	\$7,009	\$7,678
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$813,900										
State Tax Credit	\$949,550										
Net Taxes (due)	\$1,571,367	\$286,907	\$169,904	\$99,595	\$99,352	\$46,437	(\$6,557)	(\$7,038)	(\$7,613)	(\$8,291)	(\$9,082)
Net Cash Flow	(\$1,763,450)	\$1,566,308	\$280,331	\$161,804	\$89,963	\$88,181	\$33,718	(\$20,833)	(\$22,879)	(\$25,030)	(\$27,294)

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ATTACHMENT 4

DOCKET NO. 2008-0273

Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 2,713,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,306,050
Fixed O&M Escalation	State depreciation basis \$ 2,713,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -529929.6835
Fuel Cost (\$/MBtu)	5 -514577.6773
Fuel Cost Escalation	slope 3070.401228
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	678.9	673.8	668.7	663.7	658.7	653.8	648.9	644.0	639.2
Cost of Generation (\$/mWh)	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59	\$172.59
Operating Revenues	\$117,171	\$116,292	\$115,420	\$114,555	\$113,695	\$112,843	\$111,996	\$111,156	\$110,323
Fixed O&M	\$11,973	\$12,272	\$12,579	\$12,893	\$13,216	\$13,546	\$13,885	\$14,232	\$14,588
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$17,798	\$18,243	\$18,700	\$19,167	\$19,646	\$20,137	\$20,641	\$21,157	\$21,686
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$586	\$581	\$577	\$573	\$568	\$564	\$560	\$556	\$552
Operating Expenses	\$35,357	\$38,097	\$36,856	\$37,633	\$38,430	\$39,248	\$40,086	\$40,944	\$41,825
Interest Payment	\$56,126	\$51,816	\$47,117	\$41,996	\$36,414	\$30,330	\$23,697	\$16,468	\$8,589
Principal Payment	\$47,894	\$52,204	\$56,902	\$62,024	\$67,606	\$73,690	\$80,322	\$87,551	\$95,431
Debt Service	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020	\$104,020
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$25,688	\$28,380	\$31,447	\$34,925	\$38,851	\$43,265	\$48,213	\$53,744	\$59,909
State Income Tax (benefit)	\$1,545	\$1,707	\$1,892	\$2,101	\$2,337	\$2,602	\$2,900	\$3,233	\$3,604
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$24,143	\$26,673	\$28,556	\$32,824	\$36,514	\$40,663	\$45,313	\$50,511	\$56,305
Federal Income Tax (benefit)	\$8,450	\$9,335	\$10,344	\$11,489	\$12,780	\$14,232	\$15,860	\$17,679	\$19,707
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$9,995)	(\$11,042)	(\$12,236)	(\$13,589)	(\$15,117)	(\$16,834)	(\$18,760)	(\$20,911)	(\$23,310)
Net Cash Flow	(\$32,201)	(\$34,867)	(\$37,691)	(\$40,688)	(\$43,872)	(\$47,259)	(\$50,869)	(\$54,719)	(\$58,833)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$5,720
Fixed O&M (\$/kW)	\$20
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.58%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	17%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	35%
No. of Systems (inverters)	5
CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$188.58

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	725.0	719.6	714.2	708.8	703.5	698.2	693.0	687.8	682.6	677.5	672.4
Cost of Generation (\$/mWh)	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58
Operating Revenues	\$136,719	\$135,693	\$134,678	\$133,666	\$132,663	\$131,668	\$130,681	\$129,701	\$128,728	\$127,762	\$126,804
Fixed O&M	\$9,750	\$9,994	\$10,244	\$10,500	\$10,762	\$11,031	\$11,307	\$11,590	\$11,879	\$12,176	\$12,481
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$16,445	\$16,856	\$17,278	\$17,709	\$18,152	\$18,606	\$19,071	\$19,548	\$20,037	\$20,538	\$21,051
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$684	\$678	\$673	\$668	\$663	\$658	\$653	\$649	\$644	\$639	\$634
Operating Expenses	\$31,879	\$32,528	\$33,195	\$33,877	\$34,578	\$35,296	\$36,032	\$36,786	\$37,560	\$38,353	\$39,166
Interest Payment	\$90,090	\$88,329	\$86,410	\$84,317	\$82,037	\$79,551	\$76,842	\$73,889	\$70,669	\$67,161	\$63,336
Principal Payment	\$19,566	\$21,327	\$23,246	\$25,339	\$27,619	\$30,105	\$32,814	\$35,767	\$38,987	\$42,495	\$46,320
Debt Service	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656
Tax Depreciation - State	\$572,000	\$915,200	\$549,120	\$329,472	\$329,472	\$164,736	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$443,750	(\$900,364)	(\$534,048)	(\$314,001)	(\$313,424)	(\$147,915)	\$17,807	\$19,026	\$20,499	\$22,249	\$24,302
State Income Tax (benefit)	\$26,692	(\$54,157)	(\$32,123)	(\$18,887)	(\$18,852)	(\$8,897)	\$1,071	\$1,144	\$1,233	\$1,338	\$1,462
Tax Depreciation - Fed'l	\$486,200	\$777,920	\$466,752	\$280,051	\$280,051	\$140,026	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$502,859	(\$708,927)	(\$419,557)	(\$245,693)	(\$245,150)	(\$114,307)	\$16,736	\$17,881	\$19,266	\$20,911	\$22,840
Federal Income Tax (benefit)	\$176,001	(\$248,124)	(\$146,845)	(\$85,993)	(\$85,803)	(\$40,008)	\$5,858	\$6,259	\$6,743	\$7,319	\$7,994
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$858,000										
State Tax Credit	\$1,001,000										
Net Taxes (due)	\$1,656,308	\$302,281	\$178,968	\$104,880	\$104,655	\$48,905	(\$6,929)	(\$7,403)	(\$7,976)	(\$8,657)	(\$9,456)
Net Cash Flow	(1,859,000)	1,651,492	295,790	170,793	95,012	93,084	35,621	(21,936)	(24,145)	(26,464)	(28,903)

Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 2,860,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,431,000
Fixed O&M Escalation	State depreciation basis \$ 2,860,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -569195.2204
Fuel Cost (\$/MBtu)	5 -554103.4177
Fuel Cost Escalation	slope 3018.36053
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	667.4	662.4	657.4	652.5	647.6	642.7	637.9	633.1	628.4
Cost of Generation (\$/MWh)	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58	\$188.58
Operating Revenues	\$125,853	\$124,909	\$123,972	\$123,043	\$122,120	\$121,204	\$120,295	\$119,393	\$118,497
Fixed O&M	\$12,793	\$13,113	\$13,440	\$13,776	\$14,121	\$14,474	\$14,836	\$15,207	\$15,587
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$21,577	\$22,117	\$22,670	\$23,236	\$23,817	\$24,413	\$25,023	\$25,649	\$26,290
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$629	\$625	\$620	\$615	\$611	\$606	\$601	\$597	\$592
Operating Expenses	\$39,999	\$40,854	\$41,730	\$42,628	\$43,549	\$44,493	\$45,460	\$46,452	\$47,469
Interest Payment	\$59,167	\$54,623	\$49,670	\$44,272	\$38,387	\$31,973	\$24,981	\$17,361	\$9,054
Principal Payment	\$50,489	\$55,033	\$59,986	\$65,384	\$71,269	\$77,683	\$84,675	\$92,295	\$100,602
Debt Service	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656	\$109,656
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$26,686	\$29,432	\$32,572	\$36,143	\$40,184	\$44,738	\$49,853	\$55,580	\$61,974
State Income Tax (benefit)	\$1,605	\$1,770	\$1,959	\$2,174	\$2,417	\$2,691	\$2,999	\$3,343	\$3,728
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$25,081	\$27,662	\$30,613	\$33,969	\$37,787	\$42,047	\$46,854	\$52,237	\$58,246
Federal Income Tax (benefit)	\$8,778	\$9,682	\$10,714	\$11,889	\$13,218	\$14,717	\$16,399	\$18,283	\$20,386
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$10,384)	(\$11,452)	(\$12,674)	(\$14,063)	(\$15,635)	(\$17,408)	(\$19,398)	(\$21,626)	(\$24,114)
Net Cash Flow	(\$4,186)	(\$7,053)	(\$4,087)	(\$3,305)	(\$6,720)	(\$5,352)	(\$4,219)	(\$5,342)	(\$6,742)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$6,014
Fixed O&M (\$/kW)	\$21
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.55%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	16%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	35%
No. of Systems (inverters)	5

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$200.28

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	712.5	707.2	701.9	696.6	691.4	686.2	681.0	675.9	670.9	665.8	660.8
Cost of Generation (\$/MWh)	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28
Operating Revenues	\$142,897	\$141,627	\$140,565	\$139,511	\$138,464	\$137,426	\$136,395	\$135,372	\$134,357	\$133,349	\$132,349
Fixed O&M	\$10,375	\$10,634	\$10,900	\$11,173	\$11,452	\$11,738	\$12,032	\$12,333	\$12,641	\$12,957	\$13,281
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$16,539	\$16,952	\$17,376	\$17,810	\$18,255	\$18,712	\$19,180	\$19,659	\$20,151	\$20,654	\$21,171
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$713	\$708	\$703	\$698	\$692	\$687	\$682	\$677	\$672	\$667	\$662
Operating Expenses	\$32,627	\$33,294	\$33,979	\$34,680	\$35,400	\$36,137	\$36,893	\$37,669	\$38,463	\$39,278	\$40,113
Interest Payment	\$94,721	\$92,869	\$90,851	\$88,651	\$86,254	\$83,640	\$80,791	\$77,686	\$74,302	\$70,613	\$66,592
Principal Payment	\$20,572	\$22,423	\$24,441	\$26,641	\$29,039	\$31,652	\$34,501	\$37,606	\$40,990	\$44,680	\$48,701
Debt Service	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292
Tax Depreciation - State	\$601,400	\$982,240	\$577,344	\$348,406	\$346,406	\$173,203	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$466,400	(\$96,776)	(\$561,609)	(\$330,227)	(\$329,595)	(\$155,555)	\$18,710	\$20,017	\$21,592	\$23,459	\$25,644
State Income Tax (benefit)	\$28,054	(\$56,949)	(\$33,781)	(\$19,863)	(\$19,825)	(\$9,357)	\$1,125	\$1,204	\$1,299	\$1,411	\$1,543
Tax Depreciation - Fed'l	\$511,180	\$817,904	\$490,742	\$294,445	\$294,445	\$147,223	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$528,556	(\$745,492)	(\$441,227)	(\$258,403)	(\$257,809)	(\$120,218)	\$17,585	\$18,813	\$20,293	\$22,048	\$24,102
Federal Income Tax (benefit)	\$184,995	(\$260,922)	(\$154,429)	(\$90,441)	(\$90,233)	(\$42,078)	\$6,155	\$6,585	\$7,103	\$7,717	\$8,436
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$902,100										
State Tax Credit	\$1,052,450										
Net Taxes (due)	\$1,741,501	\$317,671	\$188,210	\$110,304	\$110,058	\$51,433	(\$7,280)	(\$7,789)	(\$8,401)	(\$9,128)	(\$9,978)
Net Cash Flow	(\$1,954,550)	\$1,736,280	\$310,911	\$179,504	\$99,842	\$97,831	\$37,429	(\$23,071)	(\$25,377)	(\$27,800)	(\$30,349)

DOCKET NO. 2008-0273
 ATTACHMENT 4
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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 3,007,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,555,950
Fixed O&M Escalation	State depreciation basis \$ 3,007,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -594085.541
Fuel Cost (\$/MBtu)	5 -579253.9418
Fuel Cost Escalation	slope 2966.319831
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	655.9	651.0	646.1	641.2	636.4	631.6	626.9	622.2	617.5
Cost of Generation (\$/mWh)	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28	\$200.28
Operating Revenues	\$131,358	\$130,371	\$129,394	\$128,423	\$127,460	\$126,504	\$125,555	\$124,614	\$123,679
Fixed O&M	\$13,613	\$13,953	\$14,302	\$14,660	\$15,026	\$15,402	\$15,787	\$16,181	\$16,586
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$21,700	\$22,242	\$22,799	\$23,368	\$23,953	\$24,551	\$25,165	\$25,794	\$26,439
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$657	\$652	\$647	\$642	\$637	\$633	\$628	\$623	\$618
Operating Expenses	\$40,970	\$41,848	\$42,748	\$43,670	\$44,616	\$45,586	\$46,580	\$47,599	\$48,644
Interest Payment	\$62,208	\$57,431	\$52,223	\$46,547	\$40,360	\$33,618	\$26,265	\$18,253	\$9,520
Principal Payment	\$53,084	\$57,861	\$63,069	\$68,745	\$74,932	\$81,676	\$89,027	\$97,039	\$105,773
Debt Service	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292	\$115,292
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$28,178	\$31,093	\$34,423	\$38,206	\$42,484	\$47,302	\$52,710	\$58,762	\$65,516
State Income Tax (benefit)	\$1,695	\$1,870	\$2,071	\$2,298	\$2,555	\$2,845	\$3,170	\$3,535	\$3,941
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$26,483	\$29,223	\$32,352	\$35,908	\$39,928	\$44,457	\$49,539	\$55,227	\$61,575
Federal Income Tax (benefit)	\$9,269	\$10,228	\$11,323	\$12,568	\$13,975	\$15,560	\$17,339	\$19,329	\$21,551
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$10,964)	(\$12,098)	(\$13,394)	(\$14,866)	(\$16,530)	(\$18,405)	(\$20,509)	(\$22,864)	(\$25,492)
Net Cash Flow	(35,869)	(38,867)	(42,040)	(45,405)	(48,979)	(52,779)	(56,826)	(61,142)	(65,749)

Cost of Generation Calculator

All inputs are in blue.

PV Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$6,308
Fixed O&M (\$/kW)	\$22
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Insurance (% CapEx/year)	0.60%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Land (\$/year)	\$5,000
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.75%
Capacity Factor	16%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.0000%
State Tax Rate (effective)	6.0150%
State Excise Tax Rate (wholesale)	0.5000%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	35%	\$ 500,000
No. of Systems (Inverters)	5	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$216.45

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	700.0	694.8	689.5	684.4	679.2	674.1	669.1	664.1	659.1	654.1	649.2
Cost of Generation (\$/mWh)	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45
Operating Revenues	\$151,516	\$150,380	\$149,252	\$148,132	\$147,021	\$145,919	\$144,824	\$143,738	\$142,660	\$141,590	\$140,528
Fixed O&M	\$11,000	\$11,275	\$11,557	\$11,846	\$12,142	\$12,445	\$12,757	\$13,076	\$13,402	\$13,737	\$14,081
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$18,924	\$19,397	\$19,882	\$20,379	\$20,889	\$21,411	\$21,946	\$22,495	\$23,057	\$23,633	\$24,224
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$758	\$752	\$746	\$741	\$735	\$730	\$724	\$719	\$713	\$708	\$703
Operating Expenses	\$35,682	\$36,424	\$37,185	\$37,966	\$38,766	\$39,586	\$40,427	\$41,289	\$42,173	\$43,079	\$44,008
Interest Payment	\$99,351	\$97,409	\$95,282	\$92,985	\$90,470	\$87,729	\$84,741	\$81,484	\$77,934	\$74,065	\$69,847
Principal Payment	\$21,577	\$23,519	\$25,636	\$27,943	\$30,458	\$33,199	\$36,187	\$39,444	\$42,984	\$46,864	\$51,081
Debt Service	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928
Tax Depreciation - State	\$630,800	\$1,009,280	\$605,568	\$363,341	\$363,341	\$181,670	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$489,583	(\$92,733)	(\$588,794)	(\$346,159)	(\$345,555)	(\$163,066)	\$19,657	\$20,965	\$22,553	\$24,447	\$26,673
State Income Tax (benefit)	\$29,448	(\$59,713)	(\$35,416)	(\$20,821)	(\$20,785)	(\$9,808)	\$1,182	\$1,261	\$1,357	\$1,470	\$1,604
Tax Depreciation - Fed'l	\$536,180	\$857,888	\$514,733	\$308,840	\$308,840	\$154,420	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$554,755	(\$781,628)	(\$462,543)	(\$270,836)	(\$270,269)	(\$126,007)	\$18,474	\$19,704	\$21,197	\$22,976	\$25,069
Federal Income Tax (benefit)	\$194,164	(\$273,570)	(\$161,890)	(\$94,793)	(\$94,594)	(\$44,103)	\$6,466	\$6,896	\$7,419	\$8,042	\$8,774
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$946,200										
State Tax Credit	\$1,103,900										
Net Taxes (due)	\$1,826,487	\$333,283	\$197,306	\$115,614	\$115,379	\$53,911	(\$7,648)	(\$8,157)	(\$8,775)	(\$9,512)	(\$10,379)
Net Cash Flow	(2,050,100)	\$1,821,393	\$1,326,310	\$188,444	\$104,853	\$102,707	\$39,316	(\$24,179)	(\$26,637)	(\$29,216)	(\$31,929)

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ATTACHMENT 4

DOCKET NO. 2008-0273

Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 3,154,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 2,680,900
Fixed O&M Escalation	State depreciation basis \$ 3,154,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -630800.0122
Fuel Cost (\$/MBtu)	5 -616228.8165
Fuel Cost Escalation	slope 2914.279132
Land (\$/year)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	644.4	639.5	634.7	630.0	625.3	620.6	615.9	611.3	606.7
Cost of Generation (\$/MWh)	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45	\$216.45
Operating Revenues	\$139,474	\$138,428	\$137,390	\$136,360	\$135,337	\$134,322	\$133,314	\$132,315	\$131,322
Fixed O&M	\$14,433	\$14,794	\$15,164	\$15,543	\$15,931	\$16,330	\$16,738	\$17,156	\$17,585
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$24,830	\$25,451	\$26,087	\$26,739	\$27,408	\$28,093	\$28,795	\$29,515	\$30,253
Land Cost	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$697	\$692	\$687	\$682	\$677	\$672	\$667	\$662	\$657
Operating Expenses	\$44,960	\$45,937	\$46,938	\$47,964	\$49,016	\$50,094	\$51,199	\$52,333	\$53,495
Interest Payment	\$65,250	\$60,238	\$54,776	\$48,823	\$42,333	\$35,260	\$27,549	\$19,145	\$9,985
Principal Payment	\$55,679	\$60,690	\$66,152	\$72,106	\$78,595	\$85,669	\$93,379	\$101,783	\$110,943
Debt Service	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928	\$120,928
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$29,264	\$32,253	\$35,676	\$39,573	\$43,988	\$48,968	\$54,566	\$60,836	\$67,843
State Income Tax (benefit)	\$1,760	\$1,940	\$2,146	\$2,380	\$2,646	\$2,945	\$3,282	\$3,659	\$4,081
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$27,504	\$30,313	\$33,530	\$37,193	\$41,342	\$46,023	\$51,283	\$57,177	\$63,762
Federal Income Tax (benefit)	\$9,626	\$10,610	\$11,736	\$13,018	\$14,470	\$16,108	\$17,949	\$20,012	\$22,317
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$11,387)	(\$12,650)	(\$13,881)	(\$15,398)	(\$17,116)	(\$19,053)	(\$21,231)	(\$23,671)	(\$26,397)
Net Cash Flow	(37,801)	(40,986)	(44,357)	(47,930)	(51,723)	(55,754)	(60,045)	(64,618)	(69,498)

Tier 1 Hydro Resources (50% CF)**0 - 20 kW**

Inputs	Scenarios			
	Comm A	Comm B	Comm C	Comm D
Size (kW)	20	20	15	15
Production (kWh/kW)	4,380	4,380	4,380	4,380
Curtailment (%/year)	0%	0%	0%	0%
Contract life	20	20	20	20
System life	20	20	20	20
Capacity Factor	50%	50%	50%	50%
Capital Costs				
Total Installed	\$4,000	\$5,500	\$7,500	\$9,000
O&M Costs				
O&M (\$/kW)	\$50	\$50	\$50	\$50
Other Costs				
Insurance (% CapEx/year)	0.60%	0.60%	0.65%	0.70%
Property Tax (\$/year)	\$0	\$0	\$0	\$0
Land (% revenue for lease)	4%	4%	4%	4%
Financing				
Debt percentage (%)	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20
Equity rate (%)	11%	11%	11%	11%
Tax Incentives				
Depreciation Years	5	5	5	5
PTC (\$/MWh) for 10 years	\$0	\$0	\$0	\$0
Federal ITC (%)	0%	0%	0%	0%
State ITC (%)	0%	0%	0%	0%
Tax Rate (all in)	40%	40%	40%	40%
LCOE (\$/MWh)	\$135	\$181	\$243	\$290

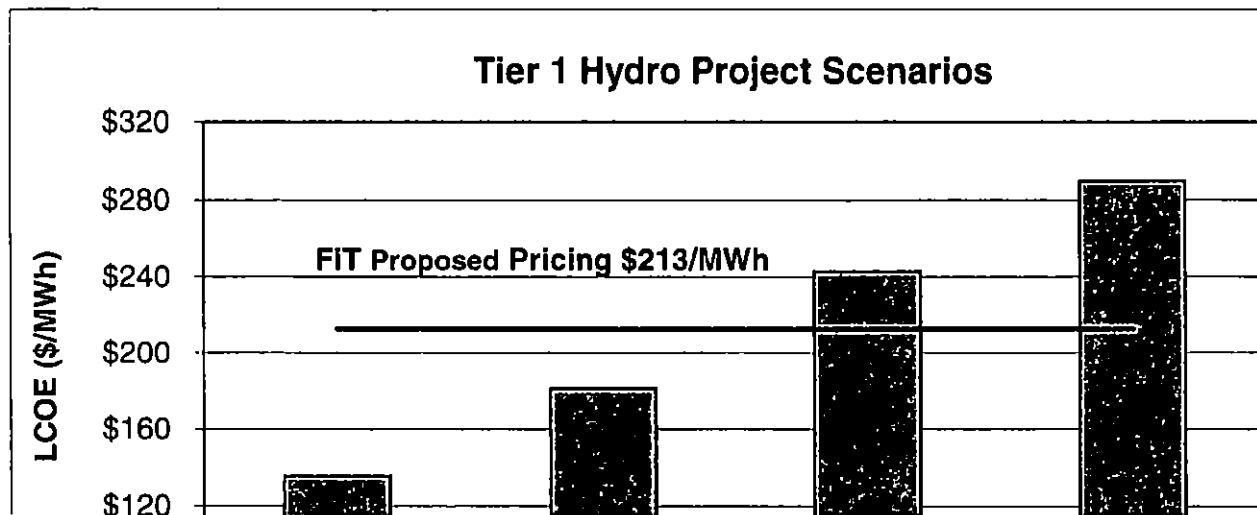
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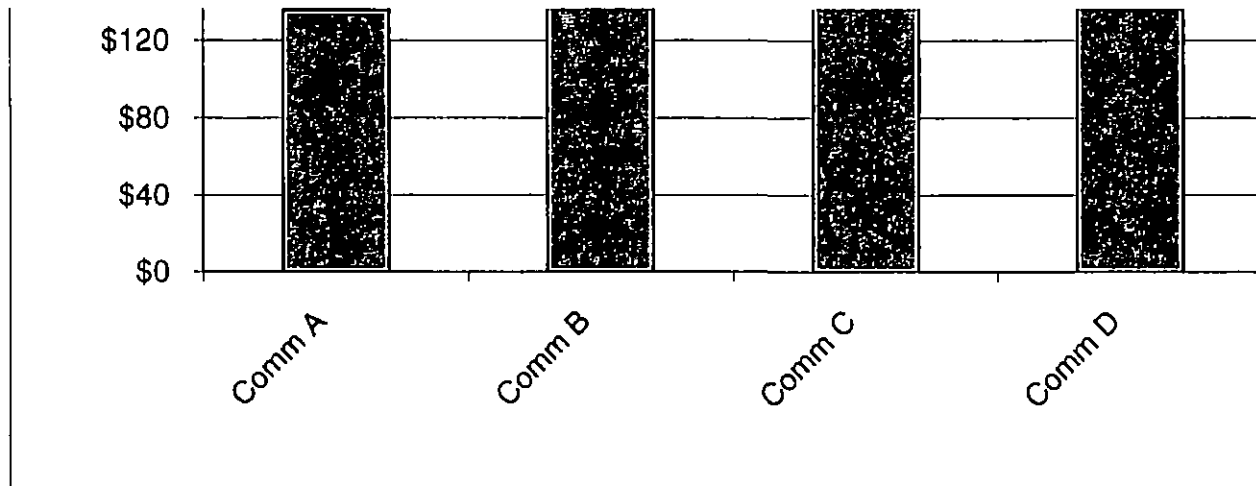
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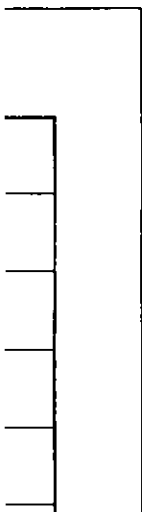
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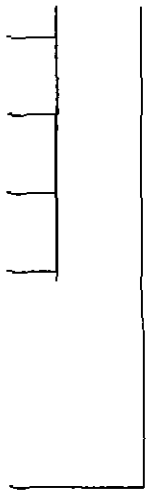




Key Inputs	A	B	C	D
Capacity Factor (%)	50%	50%	50%	50%
Installed Cost (\$/kW)	\$ 4,000	\$ 5,500	\$ 7,500	\$ 9,000
O&M (\$/kW-yr)	\$50	\$50	\$50	\$50

\$212.60





Cost of Generation Calculator

All inputs are in blue.

Hydro Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$4,000
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.6%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	50.00%

Financial/Economic/Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	0%
State Tax Credit	0%
No. of Systems	1
State Cap Ex	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$135.46

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6
Cost of Generation (\$/MWh)	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46
Operating Revenue	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867
Fixed O&M	\$1,000	\$1,025	\$1,051	\$1,077	\$1,104	\$1,131	\$1,160	\$1,189	\$1,218	\$1,249	\$1,280
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$480	\$492	\$504	\$517	\$530	\$543	\$557	\$571	\$585	\$599	\$614
Land Cost	\$475	\$475	\$475	\$475	\$475	\$475	\$475	\$475	\$475	\$475	\$475
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59
Operating Expenses	\$2,014	\$2,051	\$2,089	\$2,128	\$2,168	\$2,208	\$2,250	\$2,293	\$2,337	\$2,382	\$2,429
Interest Payment	\$2,520	\$2,471	\$2,417	\$2,359	\$2,295	\$2,225	\$2,149	\$2,067	\$1,977	\$1,879	\$1,772
Principal Payment	\$547	\$597	\$650	\$709	\$773	\$842	\$918	\$1,000	\$1,091	\$1,189	\$1,296
Debt Service	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067
Tax Depreciation - State	\$16,000	\$25,600	\$15,360	\$9,216	\$9,216	\$4,608	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$8,667)	(\$18,255)	(\$7,999)	(\$1,836)	(\$1,812)	\$2,825	\$7,467	\$7,507	\$7,553	\$7,606	\$7,666
State Income Tax (benefit)	(\$521)	(\$1,098)	(\$481)	(\$110)	(\$109)	\$170	\$449	\$452	\$454	\$457	\$461
Tax Depreciation - Fed'l	\$16,000	\$25,600	\$15,360	\$9,216	\$9,216	\$4,608	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$8,146)	(\$17,157)	(\$7,518)	(\$1,725)	(\$1,703)	\$2,655	\$7,018	\$7,055	\$7,098	\$7,148	\$7,205
Federal Income Tax (benefit)	(\$2,851)	(\$6,005)	(\$2,631)	(\$604)	(\$596)	\$929	\$2,456	\$2,469	\$2,484	\$2,502	\$2,522
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$3,372	\$7,103	\$3,113	\$714	\$705	(\$1,099)	(\$2,905)	(\$2,921)	(\$2,939)	(\$2,959)	(\$2,983)
Net Cash Flow	(\$2,000)	\$10,158	\$13,851	\$9,823	\$7,337	\$5,492	\$3,644	\$3,585	\$3,523	\$3,458	\$3,388

DOCKET NO. 2008-0273
ATTACHMENT 4
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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 80,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 80,000
Fixed O&M Escalation	State depreciation basis \$ 80,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -49667.60226
Fuel Cost (\$/MBtu)	5 -47834.35512
Fuel Cost Escalation	slope 366.6494281
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6
Cost of Generation (\$/mWh)	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46	\$135.46
Operating Revenues	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867	\$11,867
Fixed O&M	\$1,312	\$1,345	\$1,379	\$1,413	\$1,448	\$1,485	\$1,522	\$1,560	\$1,599
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$630	\$646	\$662	\$678	\$695	\$713	\$730	\$749	\$767
Land Cost	\$475	\$475	\$475	\$475	\$475	\$475	\$475	\$475	\$475
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59	\$59
Operating Expenses	\$2,476	\$2,524	\$2,574	\$2,625	\$2,677	\$2,731	\$2,786	\$2,842	\$2,900
Interest Payment	\$1,655	\$1,528	\$1,389	\$1,238	\$1,074	\$894	\$699	\$486	\$253
Principal Payment	\$1,412	\$1,539	\$1,678	\$1,829	\$1,994	\$2,173	\$2,369	\$2,582	\$2,814
Debt Service	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067	\$3,067
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$7,736	\$7,814	\$7,903	\$8,003	\$8,115	\$8,241	\$8,382	\$8,539	\$8,713
State Income Tax (benefit)	\$465	\$470	\$475	\$481	\$488	\$496	\$504	\$514	\$524
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$7,270	\$7,344	\$7,428	\$7,522	\$7,627	\$7,745	\$7,878	\$8,025	\$8,189
Federal Income Tax (benefit)	\$2,545	\$2,570	\$2,600	\$2,633	\$2,670	\$2,711	\$2,757	\$2,809	\$2,866
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$3,010)	(\$3,041)	(\$3,075)	(\$3,114)	(\$3,158)	(\$3,207)	(\$3,261)	(\$3,322)	(\$3,390)
Net Cash Flow	\$3,313	\$3,234	\$3,150	\$3,060	\$2,964	\$2,862	\$2,752	\$2,635	\$2,509

Cost of Generation Calculator

All inputs are in blue.

Hydro Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$5,500
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.6%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.0%
Capacity Factor	50.0%

Financial/Economic/Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	
State Tax Credit	\$ 500,000
No. of Systems	1

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$180.99

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6
Cost of Generation (\$/MWh)	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99
Operating Revenues	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854
Fixed O&M	\$1,000	\$1,025	\$1,051	\$1,077	\$1,104	\$1,131	\$1,160	\$1,189	\$1,218	\$1,249	\$1,280
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$660	\$677	\$693	\$711	\$729	\$747	\$765	\$785	\$804	\$824	\$845
Land Cost	\$634	\$634	\$634	\$634	\$634	\$634	\$634	\$634	\$634	\$634	\$634
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$79	\$79	\$79	\$79	\$79	\$79	\$79	\$79	\$79	\$79	\$79
Operating Expenses	\$2,373	\$2,415	\$2,457	\$2,501	\$2,546	\$2,592	\$2,639	\$2,687	\$2,736	\$2,787	\$2,838
Interest Payment	\$3,465	\$3,397	\$3,323	\$3,243	\$3,155	\$3,060	\$2,955	\$2,842	\$2,718	\$2,583	\$2,436
Principal Payment	\$753	\$820	\$894	\$975	\$1,062	\$1,158	\$1,262	\$1,376	\$1,499	\$1,634	\$1,782
Debt Service	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218
Tax Depreciation - State	\$22,000	\$35,200	\$21,120	\$12,672	\$12,672	\$6,336	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$11,984)	(\$25,158)	(\$11,047)	(\$2,582)	(\$2,519)	\$3,867	\$10,260	\$10,326	\$10,400	\$10,485	\$10,580
State Income Tax (benefit)	(\$721)	(\$1,513)	(\$664)	(\$154)	(\$151)	\$233	\$617	\$621	\$626	\$631	\$636
Tax Depreciation - Fed'l	\$22,000	\$35,200	\$21,120	\$12,672	\$12,672	\$6,336	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$11,263)	(\$23,645)	(\$10,382)	(\$2,408)	(\$2,387)	\$3,635	\$9,643	\$9,705	\$9,775	\$9,854	\$9,944
Federal Income Tax (benefit)	(\$3,842)	(\$8,276)	(\$3,634)	(\$843)	(\$829)	\$1,272	\$3,375	\$3,397	\$3,421	\$3,449	\$3,480
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$4,663	\$9,789	\$4,298	\$997	\$980	(\$1,505)	(\$3,992)	(\$4,018)	(\$4,047)	(\$4,080)	(\$4,117)
Net Cash Flow	(\$1,500)	\$13,826	\$19,011	\$13,478	\$10,132	\$10,071	\$7,541	\$5,006	\$4,932	\$4,854	\$4,771

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 110,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 110,000
Fixed O&M Escalation	State depreciation basis \$ 110,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -86358.37349
Fuel Cost (\$/MBtu)	5 -64525.12634
Fuel Cost Escalation	slope 366.6494281
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6
Cost of Generation (\$/mWh)	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99
Operating Revenues	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854	\$15,854
Fixed O&M	\$1,312	\$1,345	\$1,379	\$1,413	\$1,448	\$1,485	\$1,522	\$1,560	\$1,599
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$866	\$888	\$910	\$933	\$956	\$980	\$1,004	\$1,029	\$1,055
Land Cost	\$634	\$634	\$634	\$634	\$634	\$634	\$634	\$634	\$634
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$79	\$79	\$79	\$79	\$79	\$79	\$79	\$79	\$79
Operating Expenses	\$2,892	\$2,946	\$3,002	\$3,059	\$3,118	\$3,178	\$3,239	\$3,302	\$3,367
Interest Payment	\$2,276	\$2,101	\$1,910	\$1,703	\$1,476	\$1,230	\$961	\$668	\$348
Principal Payment	\$1,942	\$2,117	\$2,307	\$2,515	\$2,741	\$2,988	\$3,257	\$3,550	\$3,869
Debt Service	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218	\$4,218
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$10,687	\$10,808	\$10,942	\$11,093	\$11,260	\$11,447	\$11,654	\$11,884	\$12,139
State Income Tax (benefit)	\$643	\$650	\$658	\$667	\$677	\$689	\$701	\$715	\$730
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$10,044	\$10,157	\$10,284	\$10,425	\$10,583	\$10,758	\$10,953	\$11,169	\$11,409
Federal Income Tax (benefit)	\$3,516	\$3,555	\$3,599	\$3,649	\$3,704	\$3,765	\$3,834	\$3,909	\$3,993
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$4,158)	(\$4,205)	(\$4,258)	(\$4,316)	(\$4,381)	(\$4,454)	(\$4,535)	(\$4,624)	(\$4,723)
Net Cash Flow	4,587	4,486	4,377	4,262	4,138	4,005	3,863	3,710	3,546

Cost of Generation Calculator

All inputs are in blue.

Hydro Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.015
Capital Cost (\$/kW)	\$7,500
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.65%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	50.00%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	0%
State Tax Credit	0%
No. of Systems	1

Output	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$242.74

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
Cost of Generation (\$/mWh)	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74
Operating Revenues	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948
Fixed O&M	\$750	\$769	\$788	\$808	\$828	\$849	\$870	\$892	\$914	\$937	\$960
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$731	\$750	\$768	\$787	\$807	\$827	\$848	\$869	\$891	\$913	\$936
Land Cost	\$638	\$638	\$638	\$638	\$638	\$638	\$638	\$638	\$638	\$638	\$638
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$80	\$80	\$80	\$80	\$80	\$80	\$80	\$80	\$80	\$80	\$80
Operating Expenses	\$2,199	\$2,236	\$2,274	\$2,313	\$2,353	\$2,394	\$2,435	\$2,478	\$2,522	\$2,568	\$2,614
Interest Payment	\$3,544	\$3,474	\$3,399	\$3,317	\$3,227	\$3,129	\$3,023	\$2,906	\$2,780	\$2,642	\$2,491
Principal Payment	\$770	\$839	\$914	\$997	\$1,086	\$1,184	\$1,291	\$1,407	\$1,534	\$1,672	\$1,822
Debt Service	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313
Tax Depreciation - State	\$22,500	\$36,000	\$21,600	\$12,960	\$12,960	\$6,480	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$12,295)	(\$25,763)	(\$11,325)	(\$2,842)	(\$2,592)	\$3,945	\$10,490	\$10,563	\$10,646	\$10,739	\$10,843
State Income Tax (benefit)	(\$740)	(\$1,550)	(\$881)	(\$159)	(\$156)	\$237	\$631	\$635	\$640	\$646	\$652
Tax Depreciation - Fed1	\$22,500	\$36,000	\$21,600	\$12,960	\$12,960	\$6,480	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	(\$11,555)	(\$24,213)	(\$10,644)	(\$2,483)	(\$2,435)	\$3,708	\$9,859	\$9,928	\$10,005	\$10,093	\$10,191
Federal Income Tax (benefit)	(\$4,044)	(\$8,475)	(\$3,725)	(\$869)	(\$853)	\$1,298	\$3,451	\$3,475	\$3,502	\$3,532	\$3,567
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$4,784	\$10,024	\$4,407	\$1,028	\$1,008	(\$1,535)	(\$4,082)	(\$4,110)	(\$4,142)	(\$4,178)	(\$4,219)
Net Cash Flow	(\$3,125)	\$14,219	\$19,423	\$13,767	\$10,350	\$10,290	\$7,706	\$5,117	\$5,046	\$4,970	\$4,889

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 112,500
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 112,500
Fixed O&M Escalation	State depreciation basis \$ 112,500
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -66749.73828
Fuel Cost (\$/MBtu)	5 -65374.80293
Fuel Cost Escalation	slope 274.9870711
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
Cost of Generation (\$/mWh)	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74	\$242.74
Operating Revenues	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948	\$15,948
Fixed O&M	\$984	\$1,009	\$1,034	\$1,060	\$1,086	\$1,113	\$1,141	\$1,170	\$1,199
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$959	\$983	\$1,008	\$1,033	\$1,059	\$1,086	\$1,113	\$1,141	\$1,169
Land Cost	\$638	\$638	\$638	\$638	\$638	\$638	\$638	\$638	\$638
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$80	\$80	\$80	\$80	\$80	\$80	\$80	\$80	\$80
Operating Expenses	\$2,661	\$2,710	\$2,760	\$2,811	\$2,863	\$2,917	\$2,972	\$3,028	\$3,086
Interest Payment	\$2,327	\$2,149	\$1,954	\$1,741	\$1,510	\$1,258	\$983	\$683	\$358
Principal Payment	\$1,988	\$2,165	\$2,360	\$2,572	\$2,803	\$3,056	\$3,331	\$3,630	\$3,957
Debt Service	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313	\$4,313
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$10,959	\$11,089	\$11,234	\$11,396	\$11,575	\$11,774	\$11,994	\$12,237	\$12,506
State Income Tax (benefit)	\$659	\$667	\$676	\$685	\$696	\$708	\$721	\$736	\$752
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$10,300	\$10,422	\$10,559	\$10,710	\$10,879	\$11,065	\$11,272	\$11,501	\$11,754
Federal Income Tax (benefit)	\$3,605	\$3,648	\$3,696	\$3,749	\$3,808	\$3,873	\$3,945	\$4,025	\$4,114
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$4,264)	(\$4,315)	(\$4,371)	(\$4,434)	(\$4,504)	(\$4,581)	(\$4,667)	(\$4,761)	(\$4,868)
Net Cash Flow	4,709	4,610	4,504	4,390	4,268	4,137	3,996	3,845	3,683

Cost of Generation Calculator

All inputs are in blue

Hydro Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.015
Capital Cost (\$/kW)	\$9,000
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	50.00%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	0%
State Tax Credit	0% \$ 500,000
No. of Systems	1

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$289.74

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
Cost of Generation (\$/MWh)	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74
Operating Revenues	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036
Fixed O&M	\$750	\$769	\$788	\$808	\$828	\$849	\$870	\$892	\$914	\$937	\$960
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$945	\$969	\$993	\$1,018	\$1,043	\$1,069	\$1,096	\$1,123	\$1,151	\$1,180	\$1,210
Land Cost	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95
Operating Expenses	\$2,552	\$2,594	\$2,637	\$2,682	\$2,728	\$2,774	\$2,822	\$2,871	\$2,922	\$2,973	\$3,026
Interest Payment	\$4,253	\$4,169	\$4,079	\$3,980	\$3,872	\$3,755	\$3,627	\$3,488	\$3,336	\$3,170	\$2,990
Principal Payment	\$924	\$1,007	\$1,087	\$1,196	\$1,304	\$1,421	\$1,549	\$1,688	\$1,840	\$2,006	\$2,186
Debt Service	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176
Tax Depreciation - State	\$27,000	\$43,200	\$25,920	\$15,552	\$15,552	\$7,776	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$14,768)	(\$30,928)	(\$13,600)	(\$3,178)	(\$3,116)	\$4,730	\$12,586	\$12,677	\$12,778	\$12,892	\$13,020
State Income Tax (benefit)	(\$888)	(\$1,860)	(\$818)	(\$191)	(\$187)	\$285	\$757	\$762	\$769	\$775	\$783
Tax Depreciation - Fed'l	\$27,000	\$43,200	\$25,920	\$15,552	\$15,552	\$7,776	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$13,880)	(\$29,067)	(\$12,782)	(\$2,987)	(\$2,929)	\$4,446	\$11,829	\$11,914	\$12,010	\$12,117	\$12,237
Federal Income Tax (benefit)	(\$4,858)	(\$10,174)	(\$4,474)	(\$1,045)	(\$1,025)	\$1,556	\$4,140	\$4,170	\$4,203	\$4,241	\$4,283
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$5,746	\$12,034	\$5,292	\$1,237	\$1,213	(\$1,841)	(\$4,897)	(\$4,932)	(\$4,972)	(\$5,016)	(\$5,066)
Net Cash Flow	(\$7,750)	\$17,054	\$23,300	\$16,514	\$12,414	\$12,345	\$9,245	\$6,140	\$6,056	\$5,966	\$5,870

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 135,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 135,000
Fixed O&M Escalation	State depreciation basis \$ 135,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -79674.07842
Fuel Cost (\$/MBtu)	5 -78299.14307
Fuel Cost Escalation	slope 274.9670711
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7
Cost of Generation (\$/mWh)	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74	\$289.74
Operating Revenues	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036	\$19,036
Fixed O&M	\$984	\$1,009	\$1,034	\$1,060	\$1,086	\$1,113	\$1,141	\$1,170	\$1,199
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,240	\$1,271	\$1,303	\$1,335	\$1,369	\$1,403	\$1,438	\$1,474	\$1,511
Land Cost	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95
Operating Expenses	\$3,081	\$3,138	\$3,193	\$3,252	\$3,311	\$3,373	\$3,436	\$3,500	\$3,566
Interest Payment	\$2,783	\$2,578	\$2,345	\$2,090	\$1,812	\$1,509	\$1,179	\$819	\$427
Principal Payment	\$2,383	\$2,598	\$2,831	\$3,086	\$3,364	\$3,667	\$3,997	\$4,357	\$4,749
Debt Service	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176	\$5,176
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$13,162	\$13,321	\$13,498	\$13,694	\$13,912	\$14,154	\$14,421	\$14,716	\$15,042
State Income Tax (benefit)	\$792	\$801	\$812	\$824	\$837	\$851	\$867	\$885	\$905
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$12,371	\$12,520	\$12,686	\$12,871	\$13,075	\$13,302	\$13,553	\$13,831	\$14,137
Federal Income Tax (benefit)	\$4,330	\$4,382	\$4,440	\$4,505	\$4,576	\$4,656	\$4,744	\$4,841	\$4,948
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$5,121)	(\$5,183)	(\$5,252)	(\$5,328)	(\$5,413)	(\$5,507)	(\$5,611)	(\$5,726)	(\$5,853)
Net Cash Flow	\$5,658	\$5,540	\$5,414	\$5,280	\$5,135	\$4,980	\$4,813	\$4,633	\$4,441

Tier 2 Hydro Resources (CF 50%)**20 - 100kW**

Inputs	Scenarios			
	Low Comm A	Comm B	Comm C	Comm D
Production (kWh/kW)	4,380	4,380	4,380	4,380
Curtailment (%/year)	0%	0%	0%	0%
Contract life	20	20	20	20
System life	20	20	20	20
Capacity Factor	50%	50%	50%	50%
Capital Costs				
Total Installed	\$2,000	\$3,750	\$5,500	\$7,250
O&M Costs				
O&M (\$/kW)	\$50	\$50	\$50	\$50
Other Costs				
Insurance (% CapEx/year)	0.60%	0.60%	0.60%	0.60%
Property Tax (\$/year)	\$0	\$0	\$0	\$0
Land (% revenue for lease)	4%	4%	4%	4%
Financing				
Debt percentage (%)	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20
Equity rate (%)	11%	11%	11%	11%
Tax Incentives				
Depreciation Years	5	5	5	5
PTC (\$/MWh) for 10 years	\$0	\$0	\$0	\$0
Federal ITC (%)	0%	0%	0%	0%
State ITC (%)	0%	0%	0%	0%
Tax Rate (all in)	40%	40%	40%	40%

LCOE (\$/MWh)	\$75	\$128	\$181	\$234
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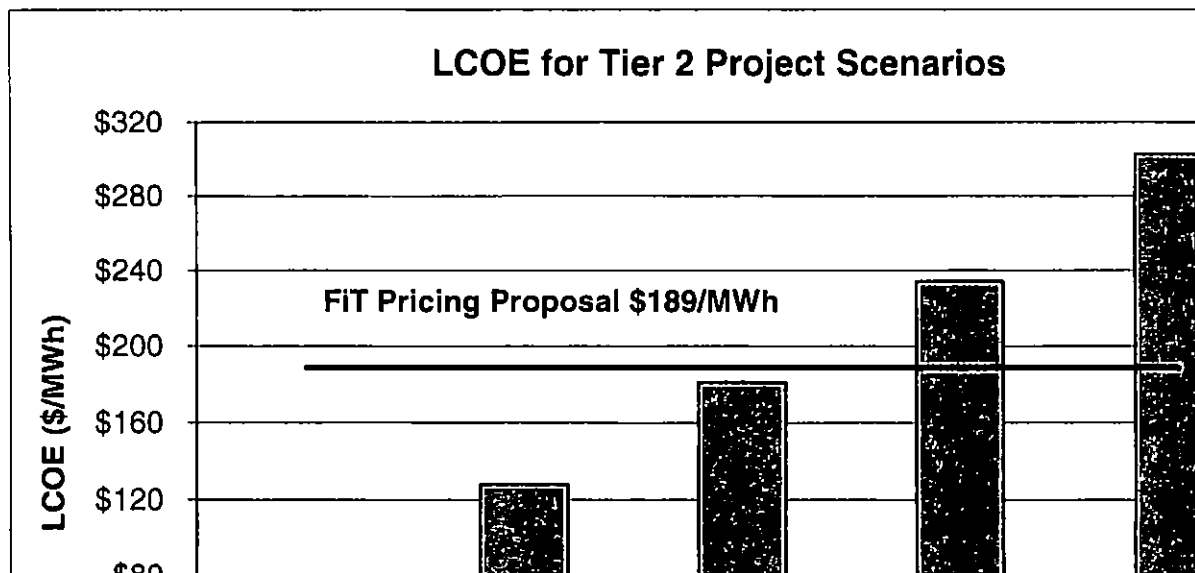
FIT Pricing Proposal \$/MWh
(midpoint of range)

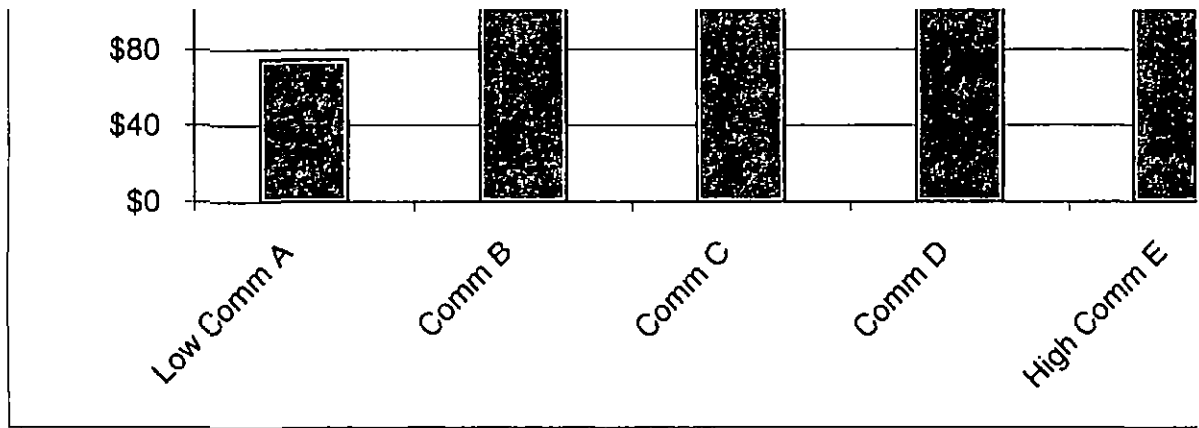
\$189

\$189

\$189

\$189





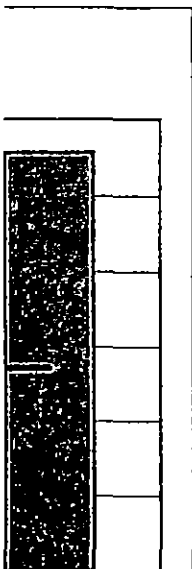
High Comm E	
4,380	
0%	
20	
20	
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\$9,000	
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0.70%	
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11%	
5	
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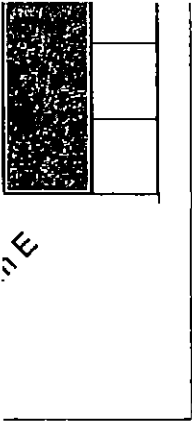
\$303

\$189

\$189

Key Inputs	A	B	C	D
Capacity Factor (%)	50%	50%	50%	50%
Installed Cost (\$/kW)	\$ 2,000	\$ 3,750	\$ 5,500	\$ 7,250
O&M (\$/kW-yr)	\$50	\$50	\$50	\$50





E
50%
\$ 9,000
\$50

Cost of Generation Calculator

All inputs are in blue

Hydro Tier 2 - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.1
Capital Cost (\$/kW)	\$2,000
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.6%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	50.00%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	0%
State Tax Credit	0%
No. of Systems	1

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$74.77

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0
Cost of Generation (\$/MWh)	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77
Operating Revenues	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748
Fixed O&M	\$5,000	\$5,125	\$5,253	\$5,384	\$5,519	\$5,657	\$5,798	\$5,943	\$6,092	\$6,244	\$6,400
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,200	\$1,230	\$1,261	\$1,292	\$1,325	\$1,358	\$1,392	\$1,426	\$1,462	\$1,499	\$1,536
Land Cost	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$164	\$164	\$164	\$164	\$164	\$164	\$164	\$164	\$164	\$164	\$164
Operating Expenses	\$7,674	\$7,829	\$7,988	\$8,150	\$8,317	\$8,488	\$8,664	\$8,844	\$9,028	\$9,217	\$9,410
Interest Payment	\$6,300	\$6,177	\$6,043	\$5,896	\$5,737	\$5,563	\$5,374	\$5,167	\$4,942	\$4,697	\$4,429
Principal Payment	\$1,368	\$1,491	\$1,626	\$1,772	\$1,931	\$2,105	\$2,295	\$2,501	\$2,726	\$2,972	\$3,239
Debt Service	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668
Tax Depreciation - State	\$40,000	\$64,000	\$38,400	\$23,040	\$23,040	\$11,520	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$21,228)	(\$45,258)	(\$19,682)	(\$4,339)	(\$4,346)	\$7,176	\$18,711	\$18,737	\$18,778	\$18,835	\$18,909
State Income Tax (benefit)	(\$1,277)	(\$2,722)	(\$1,184)	(\$261)	(\$261)	\$432	\$1,125	\$1,127	\$1,130	\$1,133	\$1,137
Tax Depreciation - Fed'l	\$40,000	\$64,000	\$38,400	\$23,040	\$23,040	\$11,520	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$19,949)	(\$42,535)	(\$18,498)	(\$4,078)	(\$4,085)	\$6,745	\$17,585	\$17,610	\$17,649	\$17,702	\$17,771
Federal Income Tax (benefit)	(\$8,982)	(\$14,887)	(\$6,474)	(\$1,427)	(\$1,430)	\$2,361	\$6,155	\$6,164	\$6,177	\$6,198	\$6,220
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$8,259	\$17,610	\$7,658	\$1,688	\$1,691	(\$2,792)	(\$7,280)	(\$7,291)	(\$7,307)	(\$7,329)	(\$7,357)
Net Cash Flow	(\$130,000)	\$25,665	\$24,750	\$18,617	\$18,453	\$13,799	\$9,136	\$8,945	\$8,745	\$8,534	\$8,312

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 200,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 200,000
Fixed O&M Escalation	State depreciation basis \$ 200,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -137066.2031
Fuel Cost (\$/MBtu)	5 -127899.9674
Fuel Cost Escalation	slope 1833.247141
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0
Cost of Generation (\$/MWh)	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77	\$74.77
Operating Revenues	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748	\$32,748
Fixed O&M	\$6,560	\$6,724	\$6,893	\$7,065	\$7,241	\$7,423	\$7,608	\$7,798	\$7,993
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,575	\$1,614	\$1,654	\$1,696	\$1,738	\$1,781	\$1,826	\$1,872	\$1,918
Land Cost	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310	\$1,310
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$164	\$164	\$164	\$164	\$164	\$164	\$164	\$164	\$164
Operating Expenses	\$9,609	\$9,812	\$10,020	\$10,234	\$10,453	\$10,678	\$10,908	\$11,144	\$11,385
Interest Payment	\$4,138	\$3,820	\$3,473	\$3,096	\$2,684	\$2,236	\$1,747	\$1,214	\$633
Principal Payment	\$3,531	\$3,848	\$4,195	\$4,572	\$4,984	\$5,432	\$5,921	\$6,454	\$7,035
Debt Service	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668	\$7,668
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$19,002	\$19,116	\$19,254	\$19,418	\$19,810	\$19,834	\$20,093	\$20,390	\$20,729
State Income Tax (benefit)	\$1,143	\$1,150	\$1,158	\$1,168	\$1,180	\$1,193	\$1,209	\$1,226	\$1,247
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$17,859	\$17,966	\$18,096	\$18,250	\$18,431	\$18,641	\$18,885	\$19,164	\$19,483
Federal Income Tax (benefit)	\$6,251	\$6,288	\$6,334	\$6,387	\$6,451	\$6,524	\$6,610	\$6,707	\$6,819
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$7,394)	(\$7,438)	(\$7,492)	(\$7,555)	(\$7,630)	(\$7,718)	(\$7,818)	(\$7,934)	(\$8,066)
Not Cash Flow	8,078	7,830	7,568	7,290	6,996	6,685	6,354	6,002	5,629

Cost of Generation Calculator

All inputs are in blue

Hydro Tier 2 - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.1
Capital Cost (\$/kW)	\$3,750
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.6%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	50.00%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	0%
State Tax Credit	0%
No. of Systems	1

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$127.88

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0
Cost of Generation (\$/MWh)	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88
Operating Revenues	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010
Fixed O&M	\$5,000	\$5,125	\$5,253	\$5,384	\$5,519	\$5,657	\$5,798	\$5,943	\$6,092	\$6,244	\$6,400
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,250	\$2,306	\$2,364	\$2,423	\$2,484	\$2,546	\$2,609	\$2,675	\$2,741	\$2,810	\$2,880
Land Cost	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280
Operating Expenses	\$9,770	\$9,952	\$10,137	\$10,328	\$10,523	\$10,723	\$10,928	\$11,138	\$11,354	\$11,575	\$11,801
Interest Payment	\$11,813	\$11,582	\$11,330	\$11,056	\$10,757	\$10,431	\$10,075	\$9,688	\$9,266	\$8,806	\$8,305
Principal Payment	\$2,565	\$2,796	\$3,048	\$3,322	\$3,621	\$3,947	\$4,303	\$4,690	\$5,112	\$5,572	\$6,073
Debt Service	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378
Tax Depreciation - State	\$75,000	\$120,000	\$72,000	\$43,200	\$43,200	\$21,600	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$40,573)	(\$85,523)	(\$37,458)	(\$8,574)	(\$8,470)	\$13,256	\$35,006	\$35,183	\$35,390	\$35,629	\$35,904
State Income Tax (benefit)	(\$2,440)	(\$5,144)	(\$2,253)	(\$516)	(\$509)	\$797	\$2,106	\$2,116	\$2,129	\$2,143	\$2,160
Tax Depreciation - Fed1	\$75,000	\$120,000	\$72,000	\$43,200	\$43,200	\$21,600	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	(\$38,133)	(\$80,379)	(\$35,204)	(\$8,058)	(\$7,960)	\$12,459	\$32,901	\$33,067	\$33,261	\$33,488	\$33,745
Federal Income Tax (benefit)	(\$13,348)	(\$28,133)	(\$12,322)	(\$2,820)	(\$2,788)	\$4,361	\$11,515	\$11,573	\$11,641	\$11,720	\$11,811
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$15,787	\$33,277	\$14,575	\$3,336	\$3,296	(\$5,158)	(\$13,621)	(\$13,690)	(\$13,770)	(\$13,863)	(\$13,970)
Net Cash Flow	(\$243,750)	\$47,648	\$64,957	\$46,069	\$34,640	\$34,404	\$25,751	\$17,083	\$16,804	\$16,508	\$16,194

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 375,000
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 375,000
Fixed O&M Escalation	State depreciation basis \$ 375,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -234429 0353
Fuel Cost (\$/MBtu)	5 -225262 7996
Fuel Cost Escalation	slope 1833.247141
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0	438.0
Cost of Generation (\$/mWh)	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88	\$127.88
Operating Revenues	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010	\$56,010
Fixed O&M	\$6,560	\$6,724	\$6,893	\$7,065	\$7,241	\$7,423	\$7,608	\$7,798	\$7,993
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,952	\$3,026	\$3,102	\$3,179	\$3,259	\$3,340	\$3,424	\$3,509	\$3,597
Land Cost	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240	\$2,240
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280
Operating Expenses	\$12,033	\$12,271	\$12,515	\$12,765	\$13,021	\$13,283	\$13,552	\$13,828	\$14,111
Interest Payment	\$7,758	\$7,162	\$6,513	\$5,805	\$5,033	\$4,182	\$3,276	\$2,276	\$1,187
Principal Payment	\$6,620	\$7,216	\$7,865	\$8,573	\$9,345	\$10,186	\$11,102	\$12,102	\$13,191
Debt Service	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378	\$14,378
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$36,219	\$38,577	\$36,982	\$37,440	\$37,956	\$38,534	\$39,182	\$39,906	\$40,712
State Income Tax (benefit)	\$2,179	\$2,200	\$2,224	\$2,252	\$2,283	\$2,318	\$2,357	\$2,400	\$2,449
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$34,040	\$34,377	\$34,758	\$35,188	\$35,673	\$36,217	\$36,825	\$37,505	\$38,263
Federal Income Tax (benefit)	\$11,914	\$12,032	\$12,165	\$12,316	\$12,486	\$12,676	\$12,889	\$13,127	\$13,392
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$14,093)	(\$14,232)	(\$14,390)	(\$14,568)	(\$14,769)	(\$14,994)	(\$15,246)	(\$15,527)	(\$15,841)
Net Cash Flow	\$15,506	\$15,129	\$14,727	\$14,299	\$13,843	\$13,355	\$12,834	\$12,277	\$11,680

Cost of Generation Calculator

All inputs are in blue.

Hydro Tier 2 - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.075
Capital Cost (\$/kW)	\$5,500
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.6%
Fuel Cost (\$/Mbtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.0%
Capacity Factor	50.0%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	
State Tax Credit	\$ 500,000
No. of Systems	1

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$180.09

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	328.5	328.5	328.5	328.5	328.5	328.5	328.5	328.5	328.5	328.5	328.5
Cost of Generation (\$/MWh)	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99
Operating Revenues	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454
Fixed O&M	\$3,750	\$3,844	\$3,940	\$4,038	\$4,139	\$4,243	\$4,349	\$4,458	\$4,569	\$4,683	\$4,800
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,475	\$2,537	\$2,600	\$2,665	\$2,732	\$2,800	\$2,870	\$2,942	\$3,016	\$3,091	\$3,168
Land Cost	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297
Operating Expenses	\$9,900	\$9,056	\$9,216	\$9,379	\$9,547	\$9,718	\$9,895	\$10,075	\$10,260	\$10,450	\$10,644
Interest Payment	\$12,994	\$12,740	\$12,463	\$12,161	\$11,832	\$11,474	\$11,083	\$10,657	\$10,193	\$9,687	\$9,135
Principal Payment	\$2,822	\$3,076	\$3,353	\$3,655	\$3,984	\$4,342	\$4,733	\$5,159	\$5,623	\$6,129	\$6,681
Debt Service	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816
Tax Depreciation - State	\$82,500	\$132,000	\$79,200	\$47,520	\$47,520	\$23,760	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$44,940)	(\$94,342)	(\$41,425)	(\$9,606)	(\$9,445)	\$14,502	\$38,476	\$38,722	\$39,001	\$39,318	\$39,675
State Income Tax (benefit)	(\$2,703)	(\$5,675)	(\$2,492)	(\$578)	(\$568)	\$872	\$2,314	\$2,329	\$2,346	\$2,365	\$2,386
Tax Depreciation - Fed'l	\$82,500	\$132,000	\$79,200	\$47,520	\$47,520	\$23,760	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$42,237)	(\$88,667)	(\$38,933)	(\$9,029)	(\$8,877)	\$13,829	\$36,162	\$36,393	\$36,655	\$36,953	\$37,288
Federal Income Tax (benefit)	(\$14,783)	(\$31,034)	(\$13,827)	(\$3,160)	(\$3,107)	\$4,770	\$12,657	\$12,737	\$12,829	\$12,933	\$13,051
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0										
State Tax Credit	\$0										
Net Taxes (due)	\$17,486	\$36,708	\$16,118	\$3,738	\$3,675	(\$5,843)	(\$14,971)	(\$15,067)	(\$15,175)	(\$15,298)	(\$15,437)
Net Cash Flow	(\$68,125)	\$22,224	\$71,290	\$50,541	\$37,997	\$37,766	\$28,277	\$18,773	\$18,497	\$18,203	\$17,890

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 412,500
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 412,500
Fixed O&M Escalation	State depreciation basis \$ 412,500
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -248843.9006
Fuel Cost (\$/MBtu)	5 -241989.2238
Fuel Cost Escalation	slope 1374.935355
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	328.5	328.5	328.5	328.5	328.5	328.5	328.5	328.5	328.5
Cost of Generation (\$/MWh)	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99	\$180.99
Operating Revenues	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454	\$59,454
Fixed O&M	\$4,920	\$5,043	\$5,169	\$5,299	\$5,431	\$5,567	\$5,706	\$5,849	\$5,995
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$3,247	\$3,329	\$3,412	\$3,497	\$3,585	\$3,674	\$3,766	\$3,860	\$3,957
Land Cost	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378	\$2,378
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297
Operating Expenses	\$10,843	\$11,047	\$11,257	\$11,471	\$11,691	\$11,916	\$12,147	\$12,384	\$12,627
Interest Payment	\$8,534	\$7,878	\$7,164	\$6,385	\$5,537	\$4,611	\$3,603	\$2,504	\$1,306
Principal Payment	\$7,282	\$7,937	\$8,652	\$9,430	\$10,279	\$11,204	\$12,213	\$13,312	\$14,510
Debt Service	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816	\$15,816
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$40,077	\$40,526	\$41,033	\$41,597	\$42,226	\$42,926	\$43,703	\$44,566	\$45,521
State Income Tax (benefit)	\$2,411	\$2,438	\$2,468	\$2,502	\$2,540	\$2,582	\$2,629	\$2,681	\$2,738
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$37,666	\$38,090	\$38,565	\$39,095	\$39,686	\$40,344	\$41,075	\$41,885	\$42,783
Federal Income Tax (benefit)	\$13,183	\$13,332	\$13,488	\$13,683	\$13,890	\$14,120	\$14,376	\$14,660	\$14,974
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$15,594)	(\$15,769)	(\$15,966)	(\$16,185)	(\$16,430)	(\$16,702)	(\$17,005)	(\$17,340)	(\$17,712)
Net Cash Flow	\$17,201	\$16,821	\$16,416	\$15,981	\$15,517	\$15,019	\$14,486	\$13,913	\$13,299

Cost of Generation Calculator

All inputs are in blue.

Hydro Tier 2 - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.05
Capital Cost (\$/kW)	\$7,250
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.80%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	50%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	8%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	0%
State Tax Credit	0%
No. of Systems	1

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$234.10

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0
Cost of Generation (\$/MWh)	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10
Operating Revenues	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267
Fixed O&M	\$2,500	\$2,563	\$2,627	\$2,692	\$2,760	\$2,829	\$2,899	\$2,972	\$3,046	\$3,122	\$3,200
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,175	\$2,229	\$2,285	\$2,342	\$2,401	\$2,461	\$2,522	\$2,585	\$2,650	\$2,716	\$2,784
Land Cost	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$256	\$256	\$256	\$256	\$256	\$256	\$256	\$256	\$256	\$256	\$256
Operating Expenses	\$6,982	\$7,099	\$7,219	\$7,341	\$7,467	\$7,596	\$7,729	\$7,864	\$8,003	\$8,145	\$8,291
Interest Payment	\$11,419	\$11,196	\$10,952	\$10,687	\$10,398	\$10,083	\$9,740	\$9,365	\$8,957	\$8,513	\$8,028
Principal Payment	\$2,480	\$2,703	\$2,946	\$3,212	\$3,501	\$3,816	\$4,159	\$4,533	\$4,941	\$5,386	\$5,871
Debt Service	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899
Tax Depreciation - State	\$72,500	\$116,000	\$69,600	\$41,760	\$41,760	\$20,880	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$39,634)	(\$83,028)	(\$36,504)	(\$8,522)	(\$8,358)	\$12,708	\$33,799	\$34,038	\$34,307	\$34,609	\$34,948
State Income Tax (benefit)	(\$2,384)	(\$4,994)	(\$2,196)	(\$513)	(\$503)	\$764	\$2,033	\$2,047	\$2,064	\$2,082	\$2,102
Tax Depreciation - Fed'l	\$72,500	\$116,000	\$69,600	\$41,760	\$41,760	\$20,880	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$37,250)	(\$78,033)	(\$34,308)	(\$8,009)	(\$7,856)	\$11,943	\$31,766	\$31,990	\$32,243	\$32,527	\$32,846
Federal Income Tax (benefit)	(\$13,037)	(\$27,312)	(\$12,008)	(\$2,603)	(\$2,750)	\$4,180	\$11,118	\$11,197	\$11,285	\$11,385	\$11,486
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$15,421	\$32,306	\$14,204	\$3,318	\$3,252	(\$4,944)	(\$13,151)	(\$13,244)	(\$13,349)	(\$13,466)	(\$13,598)
Net Cash Flow	(\$235,625)	\$45,808	\$62,575	\$44,353	\$33,342	\$33,153	\$24,827	\$16,489	\$16,260	\$16,017	\$15,756

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 362,500
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 362,500
Fixed O&M Escalation	State depreciation basis \$ 362,500
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -214577.3498
Fuel Cost (\$/MBtu)	5 -209994.2319
Fuel Cost Escalation	slope 916.6235703
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0	219.0
Cost of Generation (\$/mWh)	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10	\$234.10
Operating Revenues	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267	\$51,267
Fixed O&M	\$3,280	\$3,362	\$3,446	\$3,532	\$3,621	\$3,711	\$3,804	\$3,899	\$3,997
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,854	\$2,925	\$2,998	\$3,073	\$3,150	\$3,229	\$3,310	\$3,392	\$3,477
Land Cost	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051	\$2,051
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$256	\$256	\$256	\$256	\$256	\$256	\$256	\$256	\$256
Operating Expenses	\$8,441	\$8,594	\$8,752	\$8,913	\$9,078	\$9,247	\$9,421	\$9,598	\$9,781
Interest Payment	\$7,499	\$6,923	\$6,296	\$5,611	\$4,866	\$4,053	\$3,166	\$2,200	\$1,148
Principal Payment	\$6,399	\$6,975	\$7,603	\$8,287	\$9,033	\$9,846	\$10,732	\$11,698	\$12,751
Debt Service	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899	\$13,899
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$35,327	\$35,749	\$36,220	\$36,743	\$37,324	\$37,967	\$38,680	\$39,468	\$40,339
State Income Tax (benefit)	\$2,125	\$2,150	\$2,179	\$2,210	\$2,245	\$2,284	\$2,327	\$2,374	\$2,426
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$33,202	\$33,599	\$34,041	\$34,533	\$35,079	\$35,684	\$36,353	\$37,094	\$37,912
Federal Income Tax (benefit)	\$11,621	\$11,760	\$11,914	\$12,086	\$12,277	\$12,489	\$12,724	\$12,983	\$13,269
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$13,745)	(\$13,910)	(\$14,093)	(\$14,297)	(\$14,523)	(\$14,773)	(\$15,050)	(\$15,357)	(\$15,696)
Net Cash Flow	\$15,182	\$14,864	\$14,524	\$14,159	\$13,768	\$13,348	\$12,897	\$12,413	\$11,892

Cost of Generation Calculator

All inputs are in blue.

Hydro Tier 2 - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.025
Capital Cost (\$/kW)	\$9,000
Fixed O&M (\$/kW)	\$50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.70%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	50.00%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	12%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	0%	
State Tax Credit	0%	\$ 500,000
No. of Systems	1	

Output	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$302.70

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5
Cost of Generation (\$/MWh)	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70
Operating Revenues	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146
Fixed O&M	\$1,250	\$1,281	\$1,313	\$1,346	\$1,380	\$1,414	\$1,450	\$1,486	\$1,523	\$1,561	\$1,600
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,575	\$1,614	\$1,655	\$1,696	\$1,739	\$1,782	\$1,827	\$1,872	\$1,919	\$1,967	\$2,016
Land Cost	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$166
Operating Expenses	\$4,317	\$4,387	\$4,460	\$4,534	\$4,610	\$4,688	\$4,768	\$4,850	\$4,934	\$5,020	\$5,108
Interest Payment	\$7,088	\$6,949	\$6,798	\$6,633	\$6,454	\$6,258	\$6,045	\$5,813	\$5,560	\$5,284	\$4,983
Principal Payment	\$1,539	\$1,678	\$1,829	\$1,993	\$2,173	\$2,368	\$2,582	\$2,814	\$3,067	\$3,343	\$3,644
Debt Service	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627
Tax Depreciation - State	\$45,000	\$72,000	\$43,200	\$25,920	\$25,920	\$12,960	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	(\$23,258)	(\$50,190)	(\$21,312)	(\$3,941)	(\$3,838)	\$9,240	\$22,333	\$22,483	\$22,653	\$22,843	\$23,055
State Income Tax (benefit)	(\$1,399)	(\$3,019)	(\$1,282)	(\$237)	(\$231)	\$556	\$1,343	\$1,352	\$1,363	\$1,374	\$1,387
Tax Depreciation - Fed'l	\$45,000	\$72,000	\$43,200	\$25,920	\$25,920	\$12,960	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	(\$21,859)	(\$47,171)	(\$20,030)	(\$3,704)	(\$3,607)	\$8,684	\$20,990	\$21,131	\$21,290	\$21,469	\$21,669
Federal Income Tax (benefit)	(\$7,651)	(\$16,510)	(\$7,010)	(\$1,296)	(\$1,262)	\$3,039	\$7,346	\$7,396	\$7,452	\$7,514	\$7,584
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Tax Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Taxes (due)	\$9,050	\$19,529	\$8,292	\$1,533	\$1,493	(\$3,595)	(\$8,690)	(\$8,748)	(\$8,814)	(\$8,888)	(\$8,971)
Net Cash Flow	(\$146,250)	\$29,252	\$39,661	\$28,352	\$21,519	\$21,403	\$16,236	\$11,062	\$10,921	\$10,772	\$10,612

Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 225,000
Fixed O&M (\$/kW)	Fed1 depreciation basis \$ 225,000
Fixed O&M Escalation	State depreciation basis \$ 225,000
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -128966.4899
Fuel Cost (\$/MBtu)	5 -126836.2446
Fuel Cost Escalation	slope 426.0490726
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	108.5
Cost of Generation (\$/mWh)	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70	\$302.70
Operating Revenues	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146	\$33,146
Fixed O&M	\$1,640	\$1,681	\$1,723	\$1,766	\$1,810	\$1,856	\$1,902	\$1,950	\$1,998
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,067	\$2,118	\$2,171	\$2,225	\$2,281	\$2,338	\$2,397	\$2,456	\$2,518
Land Cost	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326	\$1,326
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$166
Operating Expenses	\$5,198	\$5,291	\$5,386	\$5,483	\$5,583	\$5,685	\$5,790	\$5,898	\$6,008
Interest Payment	\$4,655	\$4,297	\$3,908	\$3,483	\$3,020	\$2,515	\$1,965	\$1,366	\$712
Principal Payment	\$3,972	\$4,329	\$4,719	\$5,144	\$5,607	\$6,111	\$6,661	\$7,261	\$7,914
Debt Service	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627	\$8,627
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$23,293	\$23,558	\$23,853	\$24,180	\$24,543	\$24,945	\$25,391	\$25,883	\$26,426
State Income Tax (benefit)	\$1,401	\$1,417	\$1,435	\$1,454	\$1,476	\$1,500	\$1,527	\$1,557	\$1,580
Tax Depreciation - Fed1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$21,892	\$22,141	\$22,418	\$22,725	\$23,067	\$23,445	\$23,863	\$24,326	\$24,836
Federal Income Tax (benefit)	\$7,662	\$7,749	\$7,846	\$7,954	\$8,073	\$8,206	\$8,352	\$8,514	\$8,693
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$9,063)	(\$9,166)	(\$9,281)	(\$9,408)	(\$9,550)	(\$9,706)	(\$9,879)	(\$10,071)	(\$10,282)
Net Cash Flow	10,258	10,062	9,852	9,628	9,387	9,128	8,850	8,551	8,229

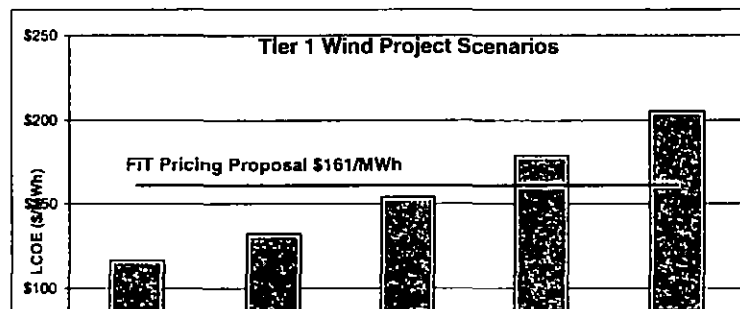
Tier 1 Wind Resources (+26% CF)
0 - 20 kW

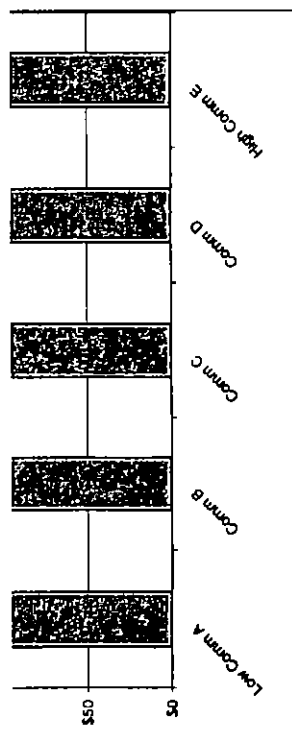
Inputs	Scenarios				
	Low Comm A	Comm B	Comm C	Comm D	High Comm E
Size (kW)	20.0	20.0	10.0	10.0	1.0
Production (kWh/kW)	2,800	2,803	2,628	2,470	2,306
Curtailment (%/year)	0%	0%	0%	0%	0%
Contract life	20	20	20	20	20
System life	20	20	20	20	20
Capacity Factor	32%	32%	30%	28%	26%
Capital Costs					
Turbines (\$/kW)	\$ 3,250	\$ 3,600	\$ 3,800	\$ 4,000	\$ 4,200
Site Development & Construction (\$/kW)	\$ 1,200	\$ 1,400	\$ 1,600	\$ 1,800	\$ 2,000
Permitting and Fees (\$/kW)	\$ 100	\$ 125	\$ 150	\$ 200	\$ 200
Freight/Excise (\$/kW)	\$ 316	\$ 350	\$ 369	\$ 389	\$ 408
Interconnection/Electrical (\$/kW)	\$ 100	\$ 125	\$ 150	\$ 200	\$ 200
Total Installed (\$/kW)	\$4,966	\$5,600	\$6,069	\$6,589	\$7,008
O&M Costs					
O&M (\$/kW/year)	\$ 25.00	\$ 30.00	\$ 35.00	\$ 40.00	\$ 45.00
Land lease (% royalty on revenues)	4.0%	4.0%	4.0%	4.0%	4%
Other Costs					
Insurance (% CapEx/year)	0.60%	0.60%	0.60%	0.60%	0.60%
Property Tax (\$/year)	\$ -	\$ -	\$ -	\$ -	\$ -
Financing					
Debt percentage (%)	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%
Tax Incentives					
Depreciation Years	5	5	5	5	5
PTC (\$/MWh) for 10 years	\$ 21	\$ 21	\$ 21	\$ 21	\$ 21
Federal ITC (%)	30%	30%	30%	30%	30%
State ITC (%)	20%	20%	20%	20%	20%
Tax Rate (all in)	40.0%	40.0%	40.0%	40.0%	40.0%

LCOE PRICES (\$/MWh)

B&V Model	\$117	\$132	\$154	\$179	\$205
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FIT Pricing Proposal (midpoint of range)	\$161	\$161	\$161	\$161	\$161
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9.72% of capital cost · assumo 5% freight charge and 4.16% from B&V study of various wind farms on HI

\$160.96

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$4,966
Fixed O&M (\$/kW)	\$25
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.6%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	32.0%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	20%
No. of Systems	1
State CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$116.71

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0
Cost of Generation (\$/MWh)	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71
Operating Revenues	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535
Fixed O&M	\$500	\$513	\$525	\$538	\$552	\$566	\$580	\$594	\$609	\$624	\$640
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$596	\$611	\$626	\$642	\$658	\$674	\$691	\$708	\$726	\$744	\$763
Land Cost	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33
Operating Expenses	\$1,390	\$1,417	\$1,445	\$1,474	\$1,504	\$1,534	\$1,565	\$1,597	\$1,629	\$1,663	\$1,697
Interest Payment	\$3,129	\$3,067	\$3,001	\$2,928	\$2,849	\$2,763	\$2,668	\$2,566	\$2,454	\$2,332	\$2,199
Principal Payment	\$679	\$741	\$807	\$880	\$959	\$1,045	\$1,140	\$1,242	\$1,354	\$1,476	\$1,609
Debt Service	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808
Tax Depreciation - State	\$19,864	\$31,782	\$19,069	\$11,441	\$11,441	\$5,721	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,017	(\$29,731)	(\$16,980)	(\$9,309)	(\$9,259)	(\$3,482)	\$2,302	\$2,372	\$2,452	\$2,540	\$2,639
State Income Tax (benefit)	\$121	(\$1,788)	(\$1,021)	(\$560)	(\$557)	(\$209)	\$138	\$143	\$147	\$153	\$159
Tax Depreciation - Fed'l	\$16,884	\$27,014	\$16,209	\$9,725	\$9,725	\$4,863	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$4,875	(\$23,176)	(\$13,098)	(\$7,033)	(\$6,986)	(\$2,415)	\$2,163	\$2,230	\$2,304	\$2,387	\$2,480
Federal Income Tax (benefit)	\$1,706	(\$8,112)	(\$4,584)	(\$2,461)	(\$2,445)	(\$845)	\$757	\$780	\$806	\$836	\$868
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$29,795										
State Tax Credit	\$19,864										
Net Taxes (due)	\$47,832	\$9,900	\$5,606	\$3,021	\$3,002	\$1,055	(\$896)	(\$923)	(\$954)	(\$988)	(\$1,027)
Net Cash Flow	(\$4,557)	\$49,169	\$11,210	\$6,887	\$4,274	\$4,225	\$2,248	\$267	\$207	\$144	\$76

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Cost of Generation

All inputs are in blue.

Technology Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 99,318
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 84,420
Fixed O&M Escalation	State depreciation basis \$ 99,318
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -27352.64323
Fuel Cost (\$/MBtu)	5 -26180.83166
Fuel Cost Escalation	slope 234.3823144
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0
Cost of Generation (\$/mWh)	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71	\$116.71
Operating Revenues	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535	\$6,535
Fixed O&M	\$656	\$672	\$689	\$706	\$724	\$742	\$761	\$780	\$799
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$782	\$801	\$821	\$842	\$863	\$885	\$907	\$929	\$953
Land Cost	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261	\$261
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33
Operating Expenses	\$1,732	\$1,768	\$1,805	\$1,843	\$1,881	\$1,921	\$1,962	\$2,003	\$2,046
Interest Payment	\$2,055	\$1,897	\$1,725	\$1,537	\$1,333	\$1,110	\$868	\$603	\$314
Principal Payment	\$1,753	\$1,911	\$2,083	\$2,271	\$2,475	\$2,698	\$2,940	\$3,205	\$3,494
Debt Service	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808	\$3,808
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,748	\$2,870	\$3,005	\$3,155	\$3,321	\$3,504	\$3,706	\$3,929	\$4,175
State Income Tax (benefit)	\$165	\$173	\$181	\$190	\$200	\$211	\$223	\$236	\$251
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$2,583	\$2,698	\$2,825	\$2,965	\$3,121	\$3,293	\$3,483	\$3,693	\$3,924
Federal Income Tax (benefit)	\$904	\$944	\$989	\$1,038	\$1,092	\$1,153	\$1,219	\$1,292	\$1,373
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$1,069)	(\$1,117)	(\$1,169)	(\$1,228)	(\$1,292)	(\$1,363)	(\$1,442)	(\$1,529)	(\$1,624)
Net Cash Flow	(74)	(158)	(247)	(343)	(446)	(557)	(676)	(805)	(943)

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.02
Capital Cost (\$/kW)	\$5,600
Fixed O&M (\$/kW)	\$30
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.60%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	32.0%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	20%	\$ 500,000
No. of Systems	1	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$132.24

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1
Cost of Generation (\$/MWh)	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24
Operating Revenues	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414
Fixed O&M	\$600	\$615	\$630	\$646	\$662	\$679	\$696	\$713	\$731	\$749	\$768
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$672	\$689	\$706	\$724	\$742	\$760	\$779	\$799	\$819	\$839	\$860
Land Cost	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$37	\$37	\$37	\$37	\$37	\$37	\$37	\$37	\$37	\$37	\$37
Operating Expenses	\$1,808	\$1,637	\$1,670	\$1,703	\$1,738	\$1,773	\$1,809	\$1,846	\$1,883	\$1,922	\$1,962
Interest Payment	\$3,528	\$3,459	\$3,384	\$3,302	\$3,213	\$3,115	\$3,009	\$2,893	\$2,767	\$2,630	\$2,480
Principal Payment	\$766	\$835	\$910	\$992	\$1,082	\$1,179	\$1,285	\$1,401	\$1,527	\$1,664	\$1,814
Debt Service	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294
Tax Depreciation - State	\$22,400	\$35,839	\$21,504	\$12,902	\$12,902	\$6,451	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$2,280	(\$33,522)	(\$19,143)	(\$10,493)	(\$10,438)	(\$3,925)	\$2,596	\$2,675	\$2,763	\$2,862	\$2,972
State Income Tax (benefit)	\$137	(\$2,016)	(\$1,151)	(\$631)	(\$628)	(\$236)	\$156	\$161	\$166	\$172	\$179
Tax Depreciation - Fed1	\$19,040	\$30,464	\$18,278	\$10,967	\$10,967	\$5,483	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$5,503	(\$26,130)	(\$14,766)	(\$7,927)	(\$7,875)	(\$2,721)	\$2,440	\$2,514	\$2,597	\$2,690	\$2,793
Federal Income Tax (benefit)	\$1,926	(\$9,145)	(\$5,168)	(\$2,774)	(\$2,756)	(\$952)	\$854	\$880	\$909	\$941	\$978
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$33,600										
State Tax Credit	\$22,400										
Net Taxes (due)	\$53,936	\$11,162	\$6,320	\$3,406	\$3,384	\$1,189	(\$1,010)	(\$1,041)	(\$1,075)	(\$1,114)	(\$1,156)
Net Cash Flow	(\$72,799)	\$55,450	\$12,644	\$7,770	\$4,822	\$4,766	\$2,536	\$2,301	\$2,233	\$1,611	\$84

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 111,998
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 95,199
Fixed O&M Escalation	State depreciation basis \$ 111,998
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -31031.44352
Fuel Cost (\$/MBtu)	5 -29858.16535
Fuel Cost Escalation	slope 234.655634
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1	56.1
Cost of Generation (\$/mWh)	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24	\$132.24
Operating Revenues	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414	\$7,414
Fixed O&M	\$787	\$807	\$827	\$848	\$869	\$891	\$913	\$936	\$959
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$882	\$904	\$926	\$950	\$973	\$998	\$1,023	\$1,048	\$1,074
Land Cost	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297	\$297
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$37	\$37	\$37	\$37	\$37	\$37	\$37	\$37	\$37
Operating Expenses	\$2,003	\$2,044	\$2,087	\$2,131	\$2,176	\$2,222	\$2,269	\$2,318	\$2,367
Interest Payment	\$2,317	\$2,139	\$1,945	\$1,734	\$1,503	\$1,252	\$978	\$680	\$355
Principal Payment	\$1,977	\$2,155	\$2,349	\$2,560	\$2,791	\$3,042	\$3,316	\$3,614	\$3,940
Debt Service	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294	\$4,294
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$3,094	\$3,231	\$3,382	\$3,549	\$3,735	\$3,940	\$4,167	\$4,417	\$4,692
State Income Tax (benefit)	\$186	\$194	\$203	\$213	\$225	\$237	\$251	\$266	\$282
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$2,908	\$3,036	\$3,178	\$3,336	\$3,510	\$3,703	\$3,916	\$4,151	\$4,410
Federal Income Tax (benefit)	\$1,018	\$1,063	\$1,112	\$1,168	\$1,229	\$1,296	\$1,371	\$1,453	\$1,544
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$1,204)	(\$1,257)	(\$1,316)	(\$1,381)	(\$1,453)	(\$1,533)	(\$1,621)	(\$1,719)	(\$1,826)
Net Cash Flow	(87)	(181)	(283)	(392)	(509)	(635)	(770)	(916)	(1,073)

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.01
Capital Cost (\$/kW)	\$6,069
Fixed O&M (\$/kW)	\$35
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.60%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	30%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	20%
No. of Systems	1
State Capital	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$154.05

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
Cost of Generation (\$/MWh)	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05
Operating Revenues	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048
Fixed O&M	\$350	\$359	\$368	\$377	\$386	\$396	\$406	\$416	\$426	\$437	\$448
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$364	\$373	\$383	\$392	\$402	\$412	\$422	\$433	\$444	\$455	\$466
Land Cost	\$162	\$162	\$162	\$162	\$162	\$162	\$162	\$162	\$162	\$162	\$162
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
Operating Expenses	\$896	\$914	\$932	\$951	\$970	\$990	\$1,010	\$1,031	\$1,052	\$1,074	\$1,096
Interest Payment	\$1,912	\$1,874	\$1,834	\$1,789	\$1,741	\$1,688	\$1,631	\$1,568	\$1,500	\$1,425	\$1,344
Principal Payment	\$415	\$453	\$493	\$538	\$586	\$639	\$696	\$759	\$827	\$902	\$983
Debt Service	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327
Tax Depreciation - State	\$12,139	\$18,422	\$11,653	\$6,992	\$6,992	\$3,496	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,240	(\$18,162)	(\$10,371)	(\$5,684)	(\$5,655)	(\$2,126)	\$1,407	\$1,449	\$1,496	\$1,549	\$1,608
State Income Tax (benefit)	\$75	(\$1,082)	(\$624)	(\$342)	(\$340)	(\$128)	\$85	\$87	\$90	\$93	\$97
Tax Depreciation - Fed'l	\$10,318	\$16,509	\$9,905	\$5,943	\$5,943	\$2,972	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$2,986	(\$14,156)	(\$7,999)	(\$4,293)	(\$4,266)	(\$1,474)	\$1,323	\$1,362	\$1,406	\$1,456	\$1,511
Federal Income Tax (benefit)	\$1,045	(\$4,955)	(\$2,800)	(\$1,503)	(\$1,493)	(\$518)	\$483	\$477	\$492	\$510	\$529
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$18,208										
State Tax Credit	\$12,139										
Net Taxes (due)	\$29,227	\$6,047	\$3,424	\$1,845	\$1,833	\$644	(\$548)	(\$564)	(\$582)	(\$603)	(\$626)
Net Cash Flow	(\$9,451)	\$30,052	\$6,854	\$4,212	\$2,615	\$2,584	\$1,375	\$1,663	\$1,287	\$1,445	\$1,455

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 60,694
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 51,590
Fixed O&M Escalation	State depreciation basis \$ 60,694
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -16944.60479
Fuel Cost (\$/MBtu)	5 -16394.63065
Fuel Cost Escalation	slope 109.9948284
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
Cost of Generation (\$/mWh)	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05	\$154.05
Operating Revenues	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048	\$4,048
Fixed O&M	\$459	\$471	\$482	\$495	\$507	\$520	\$533	\$546	\$560
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$478	\$490	\$502	\$515	\$527	\$541	\$554	\$568	\$582
Land Cost	\$162	\$162	\$162	\$162	\$162	\$162	\$162	\$162	\$162
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
Operating Expenses	\$1,119	\$1,143	\$1,167	\$1,191	\$1,216	\$1,242	\$1,269	\$1,296	\$1,324
Interest Payment	\$1,256	\$1,159	\$1,054	\$940	\$815	\$679	\$530	\$368	\$192
Principal Payment	\$1,071	\$1,168	\$1,273	\$1,388	\$1,512	\$1,649	\$1,797	\$1,959	\$2,135
Debt Service	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327	\$2,327
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,674	\$1,747	\$1,828	\$1,918	\$2,017	\$2,128	\$2,249	\$2,384	\$2,532
State Income Tax (benefit)	\$101	\$105	\$110	\$115	\$121	\$128	\$135	\$143	\$152
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$1,573	\$1,642	\$1,718	\$1,802	\$1,896	\$2,000	\$2,114	\$2,241	\$2,380
Federal Income Tax (benefit)	\$551	\$575	\$601	\$631	\$664	\$700	\$740	\$784	\$833
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$651)	(\$680)	(\$711)	(\$746)	(\$785)	(\$828)	(\$875)	(\$928)	(\$985)
Net Cash Flow	(49)	(101)	(156)	(216)	(280)	(349)	(423)	(502)	(588)

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 1 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.01
Capital Cost (\$/kW)	\$6,589
Fixed O&M (\$/kW)	\$40
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.60%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	28%

Financial/Economic/Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	20%
No. of Systems	1

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$178.91

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7
Cost of Generation (\$/MWh)	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91
Operating Revenues	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420
Fixed O&M	\$400	\$410	\$420	\$431	\$442	\$453	\$464	\$475	\$487	\$500	\$512
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$395	\$405	\$415	\$426	\$436	\$447	\$458	\$470	\$482	\$494	\$506
Land Cost	\$177	\$177	\$177	\$177	\$177	\$177	\$177	\$177	\$177	\$177	\$177
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22
Operating Expenses	\$994	\$1,014	\$1,034	\$1,055	\$1,077	\$1,099	\$1,121	\$1,144	\$1,168	\$1,192	\$1,217
Interest Payment	\$2,075	\$2,035	\$1,991	\$1,942	\$1,890	\$1,833	\$1,770	\$1,702	\$1,628	\$1,547	\$1,459
Principal Payment	\$451	\$491	\$536	\$584	\$636	\$694	\$756	\$824	\$898	\$979	\$1,067
Debt Service	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526
Tax Depreciation - State	\$13,178	\$21,084	\$12,650	\$7,590	\$7,590	\$3,795	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,350	(\$19,714)	(\$11,256)	(\$6,169)	(\$6,137)	(\$2,307)	\$1,528	\$1,573	\$1,624	\$1,680	\$1,744
State Income Tax (benefit)	\$81	(\$1,186)	(\$677)	(\$371)	(\$369)	(\$139)	\$92	\$95	\$98	\$101	\$105
Tax Depreciation - Fed'l	\$11,201	\$17,922	\$10,753	\$6,452	\$6,452	\$3,226	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$3,245	(\$15,365)	(\$8,681)	(\$4,659)	(\$4,630)	(\$1,599)	\$1,436	\$1,478	\$1,526	\$1,579	\$1,639
Federal Income Tax (benefit)	\$1,136	(\$5,378)	(\$3,039)	(\$1,631)	(\$1,620)	(\$580)	\$503	\$517	\$534	\$553	\$574
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$19,766										
State Tax Credit	\$13,178										
Net Taxes (due)	\$31,727	\$6,564	\$3,716	\$2,002	\$1,990	\$698	(\$595)	(\$612)	(\$632)	(\$654)	(\$678)
Net Cash Flow	\$2,626	\$7,443	\$4,574	\$2,840	\$2,806	\$1,493	\$1,788	\$1,137	\$94	\$47	(\$2)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 65,888
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 56,005
Fixed O&M Escalation	State depreciation basis \$ 65,888
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -18498.20441
Fuel Cost (\$/MBtu)	5 -17981.22871
Fuel Cost Escalation	slope 103.3951387
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.7
Cost of Generation (\$/mWh)	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91	\$178.91
Operating Revenues	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420	\$4,420
Fixed O&M	\$525	\$538	\$551	\$565	\$579	\$594	\$609	\$624	\$639
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$519	\$532	\$545	\$559	\$573	\$587	\$602	\$617	\$632
Land Cost	\$177	\$177	\$177	\$177	\$177	\$177	\$177	\$177	\$177
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22	\$22
Operating Expenses	\$1,242	\$1,269	\$1,295	\$1,323	\$1,351	\$1,380	\$1,409	\$1,439	\$1,470
Interest Payment	\$1,383	\$1,258	\$1,144	\$1,020	\$884	\$737	\$576	\$400	\$209
Principal Payment	\$1,163	\$1,268	\$1,382	\$1,506	\$1,642	\$1,790	\$1,951	\$2,126	\$2,318
Debt Service	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526	\$2,526
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$1,814	\$1,893	\$1,980	\$2,077	\$2,184	\$2,303	\$2,435	\$2,580	\$2,741
State Income Tax (benefit)	\$109	\$114	\$119	\$125	\$131	\$139	\$146	\$155	\$165
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$1,705	\$1,779	\$1,861	\$1,952	\$2,053	\$2,165	\$2,289	\$2,425	\$2,576
Federal Income Tax (benefit)	\$597	\$623	\$651	\$683	\$719	\$758	\$801	\$849	\$902
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$706)	(\$736)	(\$770)	(\$808)	(\$850)	(\$896)	(\$947)	(\$1,004)	(\$1,066)
Net Cash Flow	(\$55)	(\$112)	(\$172)	(\$237)	(\$307)	(\$382)	(\$463)	(\$550)	(\$643)

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 1 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.001
Capital Cost (\$/kW)	\$7,008
Fixed O&M (\$/kW)	\$45
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.60%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	26%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	20%
No. of Systems	1
State Tax Credit	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$205.20

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Cost of Generation (\$/MWh)	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20
Operating Revenues	\$473	\$473	\$473	\$473	\$473	\$473	\$473	\$473	\$473	\$473	\$473
Fixed O&M	\$45	\$46	\$47	\$48	\$50	\$51	\$52	\$53	\$55	\$56	\$58
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$42	\$43	\$44	\$45	\$46	\$48	\$49	\$50	\$51	\$53	\$54
Land Cost	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2
Operating Expenses	\$108	\$111	\$113	\$115	\$117	\$120	\$122	\$125	\$127	\$130	\$133
Interest Payment	\$221	\$216	\$212	\$207	\$201	\$195	\$188	\$181	\$173	\$165	\$155
Principal Payment	\$48	\$52	\$57	\$62	\$68	\$74	\$80	\$88	\$98	\$104	\$114
Debt Service	\$269	\$269	\$269	\$269	\$269	\$269	\$269	\$269	\$269	\$269	\$269
Tax Depreciation - State	\$1,402	\$2,243	\$1,346	\$807	\$807	\$404	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$144	(\$2,096)	(\$1,197)	(\$656)	(\$653)	(\$245)	\$163	\$167	\$173	\$179	\$185
State Income Tax (benefit)	\$9	(\$126)	(\$72)	(\$39)	(\$39)	(\$15)	\$10	\$10	\$10	\$11	\$11
Tax Depreciation - Fed'l	\$1,191	\$1,906	\$1,144	\$686	\$686	\$343	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$346	(\$1,634)	(\$923)	(\$495)	(\$492)	(\$170)	\$153	\$157	\$162	\$168	\$174
Federal Income Tax (benefit)	\$121	(\$572)	(\$323)	(\$173)	(\$172)	(\$59)	\$53	\$55	\$57	\$59	\$61
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$2,102										
State Tax Credit	\$1,402										
Net Taxes (due)	\$3,374	\$698	\$395	\$213	\$212	\$74	(\$63)	(\$65)	(\$67)	(\$69)	(\$72)
Net Cash Flow	3,471	792	487	302	299	159	19	15	10	5	0

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 7,008
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 5,957
Fixed O&M Escalation	State depreciation basis \$ 7,008
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -1980.237085
Fuel Cost (\$/MBtu)	5 -1931.98602
Fuel Cost Escalation	slope 9.650212948
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Cost of Generation (\$/mWh)	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20	\$205.20
Operating Revenues	\$473	\$473	\$473	\$473	\$473	\$473	\$473	\$473	\$473
Fixed O&M	\$59	\$61	\$62	\$64	\$65	\$67	\$68	\$70	\$72
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$55	\$57	\$58	\$59	\$61	\$62	\$64	\$66	\$67
Land Cost	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2
Operating Expenses	\$136	\$138	\$141	\$144	\$147	\$151	\$154	\$157	\$160
Interest Payment	\$145	\$134	\$122	\$108	\$94	\$78	\$61	\$43	\$22
Principal Payment	\$124	\$135	\$147	\$160	\$175	\$190	\$207	\$226	\$247
Debt Service	\$269	\$269	\$269	\$269	\$269	\$269	\$269	\$269	\$269
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$193	\$201	\$210	\$220	\$232	\$244	\$258	\$274	\$290
State Income Tax (benefit)	\$12	\$12	\$13	\$13	\$14	\$15	\$16	\$16	\$17
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$181	\$189	\$197	\$207	\$218	\$230	\$243	\$257	\$273
Federal Income Tax (benefit)	\$63	\$66	\$69	\$72	\$76	\$80	\$85	\$90	\$96
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$75)	(\$78)	(\$82)	(\$86)	(\$90)	(\$95)	(\$100)	(\$106)	(\$113)
Net Cash Flow	(6)	(12)	(19)	(26)	(33)	(41)	(50)	(59)	(69)

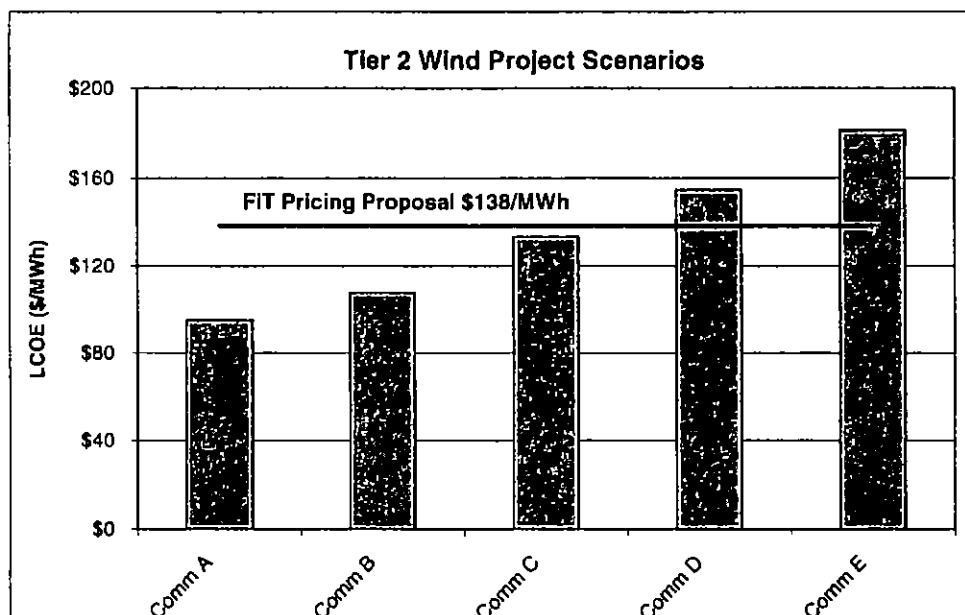
Tier 2 Wind Resources (+30% CF)
20 - 100 kW

Inputs	Scenarios				
	Low Comm A	Comm B	Comm C	Comm D	High Comm E
Size (kW)	100.0	75.0	50.0	50.0	25.0
Production (kWh/kW)	3,458	3,294	2,882	2,835	2,470
Curtailment (%/year)	0%	0%	0%	0%	0%
Contract life	20	20	20	20	20
System life	20	20	20	20	20
Capacity factor (after losses)	39%	38%	33%	30%	28%
Capital Costs					
Turbines (\$/kW)	\$ 3,100	\$ 3,100	\$ 3,400	\$ 3,500	\$ 3,600
Site Development & Construction (\$/kW)	\$ 1,200	\$ 1,300	\$ 1,500	\$ 1,700	\$ 2,000
Permitting and Fees (\$/kW)	\$ 150	\$ 175	\$ 250	\$ 250	\$ 300
Freight/Excise (\$/kW)	\$ 284	\$ 284	\$ 311	\$ 321	\$ 330
Interconnection/Electrical (\$/kW)	\$ 275	\$ 275	\$ 300	\$ 325	\$ 325
Total Installed (\$/kW)	\$ 5,009	\$ 5,134	\$ 5,761	\$ 6,096	\$ 6,555
O&M Costs					
O&M (\$/kW/year)	\$ 25.00	\$ 30.00	\$ 30.00	\$ 30.00	\$ 40.00
Land lease (% royalty on revenues)	4%	4%	4%	4%	4%
Other Costs					
Insurance (% CapEx/year)	0.6%	0.6%	0.65%	0.7%	0.7%
Property Tax (\$/year)	\$ -	\$ -	\$ -	\$ -	\$ -
Financing					
Debt percentage (%)	35%	35%	35%	35%	35%
Debt rate (%)	9%	9%	9%	9%	9%
Debt tenor (years)	20	20	20	20	20
Equity rate (%)	11%	11%	11%	11%	11%
Tax Incentives					
Depreciation Years	5	5	5	5	5
PTC (\$/MWh) for 10 years	\$ 21	\$ 21	\$ 21	\$ 21	\$ 21
Federal ITC (%)	30%	30%	30%	30%	30%
State ITC (%)	20%	20%	20%	20%	20%
Tax Rate (all in)	40.0%	40.0%	40.0%	40.0%	40%

LCOE PRICES (\$/MWh)

B&V Model	\$95	\$108	\$133	\$155	\$181
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FIT Pricing Proposal (midpoint of range)	\$138	\$138	\$138	\$138	\$138
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Low α	α	α	α	High α
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Key Inputs	A	B	C	D	E
Size (kW)	100.0	80.0	50.0	50.0	30.0
Capacity Factor (%)	39%	38%	33%	30%	28%
Installed Cost (\$/kW)	\$ 5,009	\$ 5,134	\$ 5,761	\$ 6,086	\$ 6,555

Property tax exemption in HI

\$138.29

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Cost of Generation Calculator

All inputs are in blue.

Wind Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.1
Capital Cost (\$/kW)	\$5,009
Fixed O&M (\$/kW)	\$25
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.6%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	39%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	20%	\$ 500,000
No. of Systems	1	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$95.22

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	345.8	345.8	345.8	345.8	345.8	345.8	345.8	345.8	345.8	345.8	345.8
Cost of Generation (\$/MWh)	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22
Operating Revenues	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932
Fixed O&M	\$2,500	\$2,563	\$2,627	\$2,692	\$2,760	\$2,829	\$2,899	\$2,972	\$3,046	\$3,122	\$3,200
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$3,005	\$3,081	\$3,158	\$3,236	\$3,317	\$3,400	\$3,485	\$3,572	\$3,662	\$3,753	\$3,847
Land Cost	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$165	\$165	\$165	\$165	\$165	\$165	\$165	\$165	\$165	\$165	\$165
Operating Expenses	\$6,987	\$7,125	\$7,266	\$7,411	\$7,559	\$7,711	\$7,866	\$8,026	\$8,190	\$8,357	\$8,529
Interest Payment	\$15,778	\$15,470	\$15,134	\$14,767	\$14,368	\$13,932	\$13,458	\$12,941	\$12,377	\$11,762	\$11,093
Principal Payment	\$3,427	\$3,735	\$4,071	\$4,438	\$4,837	\$5,272	\$5,747	\$6,264	\$6,828	\$7,443	\$8,112
Debt Service	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205
Tax Depreciation - State	\$100,179	\$180,287	\$98,172	\$57,703	\$57,703	\$28,852	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$10,167	(\$149,849)	(\$85,640)	(\$46,849)	(\$46,698)	(\$17,563)	\$11,608	\$11,965	\$12,365	\$12,812	\$13,310
State Income Tax (benefit)	\$612	(\$9,019)	(\$5,151)	(\$2,824)	(\$2,809)	(\$1,056)	\$698	\$720	\$744	\$771	\$801
Tax Depreciation - Fed'l	\$85,152	\$136,244	\$81,746	\$49,048	\$49,048	\$24,524	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$24,582	(\$118,887)	(\$66,063)	(\$35,469)	(\$35,233)	(\$12,179)	\$10,909	\$11,246	\$11,622	\$12,042	\$12,510
Federal Income Tax (benefit)	\$8,604	(\$40,910)	(\$23,122)	(\$12,414)	(\$12,332)	(\$4,263)	\$3,818	\$3,936	\$4,068	\$4,215	\$4,378
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$150,269										
State Tax Credit	\$100,179										
Net Taxes (due)	\$241,233	\$49,930	\$28,273	\$15,238	\$15,141	\$5,319	(\$4,517)	(\$4,656)	(\$4,811)	(\$4,985)	(\$5,179)
Net Cash Flow	(\$25,582)	\$247,973	\$6,532	\$34,734	\$21,555	\$21,309	\$11,335	\$1,344	\$1,045	\$726	\$385

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 500,896
Fixed O&M (\$/kW)	Fed1 depreciation basis \$ 425,762
Fixed O&M Escalation	State depreciation basis \$ 500,896
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -137837.2754
Fuel Cost (\$/MBtu)	5 -130599.6157
Fuel Cost Escalation	slope 1447.531942
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	345.8	345.8	345.8	345.8	345.8	345.8	345.8	345.8	345.8
Cost of Generation (\$/mWh)	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22	\$95.22
Operating Revenues	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932	\$32,932
Fixed O&M	\$3,280	\$3,382	\$3,446	\$3,532	\$3,621	\$3,711	\$3,804	\$3,898	\$3,997
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$3,943	\$4,042	\$4,143	\$4,247	\$4,353	\$4,461	\$4,573	\$4,687	\$4,805
Land Cost	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$165	\$165	\$165	\$165	\$165	\$165	\$165	\$165	\$165
Operating Expenses	\$8,705	\$8,886	\$9,071	\$9,261	\$9,455	\$9,655	\$9,859	\$10,068	\$10,283
Interest Payment	\$10,362	\$9,567	\$8,699	\$7,754	\$6,723	\$5,600	\$4,375	\$3,041	\$1,586
Principal Payment	\$8,843	\$9,638	\$10,506	\$11,451	\$12,482	\$13,605	\$14,830	\$16,164	\$17,619
Debt Service	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205	\$19,205
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$13,864	\$14,479	\$15,162	\$15,918	\$16,754	\$17,678	\$18,698	\$19,823	\$21,063
State Income Tax (benefit)	\$834	\$871	\$912	\$957	\$1,008	\$1,063	\$1,125	\$1,192	\$1,267
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$13,030	\$13,608	\$14,250	\$14,960	\$15,746	\$16,614	\$17,573	\$18,631	\$19,796
Federal Income Tax (benefit)	\$4,561	\$4,763	\$4,987	\$5,236	\$5,511	\$5,815	\$6,151	\$6,521	\$6,929
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$5,395)	(\$5,634)	(\$5,899)	(\$6,193)	(\$6,519)	(\$6,878)	(\$7,275)	(\$7,713)	(\$8,196)
Net Cash Flow	(373)	(793)	(1,243)	(1,727)	(2,247)	(2,806)	(3,407)	(4,054)	(4,752)

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.075
Capital Cost (\$/kW)	\$5,134
Fixed O&M (\$/kW)	\$40
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.6%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.0%
Capacity Factor	38%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	20%
No. of Systems	1

Outputs	
NPV for Equity Return	\$0
Lateralized Cost of Generation	\$107.88

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	247.0	247.0	247.0	247.0	247.0	247.0	247.0	247.0	247.0	247.0	247.0
Cost of Generation (\$/MWh)	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86
Operating Revenues	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644
Fixed O&M	\$3,000	\$3,075	\$3,152	\$3,231	\$3,311	\$3,394	\$3,479	\$3,566	\$3,655	\$3,747	\$3,840
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,310	\$2,368	\$2,427	\$2,488	\$2,550	\$2,614	\$2,679	\$2,746	\$2,815	\$2,885	\$2,957
Land Cost	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$133	\$133	\$133	\$133	\$133	\$133	\$133	\$133	\$133	\$133	\$133
Operating Expenses	\$6,509	\$6,642	\$6,778	\$6,918	\$7,061	\$7,207	\$7,357	\$7,511	\$7,669	\$7,831	\$7,997
Interest Payment	\$12,129	\$11,892	\$11,633	\$11,352	\$11,045	\$10,710	\$10,345	\$9,948	\$9,514	\$9,042	\$8,527
Principal Payment	\$2,634	\$2,871	\$3,130	\$3,411	\$3,718	\$4,053	\$4,418	\$4,815	\$5,249	\$5,721	\$6,236
Debt Service	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763
Tax Depreciation - State	\$77,009	\$123,215	\$73,929	\$44,357	\$44,357	\$22,179	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$8,006	(\$115,105)	(\$65,696)	(\$35,982)	(\$35,818)	(\$13,452)	\$8,942	\$9,185	\$9,461	\$9,772	\$10,121
State Income Tax (benefit)	\$482	(\$6,924)	(\$3,952)	(\$2,164)	(\$2,154)	(\$809)	\$538	\$553	\$569	\$588	\$609
Tax Depreciation - Fed'l	\$65,458	\$104,733	\$62,840	\$37,704	\$37,704	\$18,852	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$19,076	(\$89,699)	(\$50,655)	(\$27,164)	(\$27,010)	(\$9,316)	\$8,404	\$8,633	\$8,892	\$9,184	\$9,512
Federal Income Tax (benefit)	\$6,677	(\$31,395)	(\$17,729)	(\$9,508)	(\$9,454)	(\$3,260)	\$2,941	\$3,022	\$3,112	\$3,214	\$3,328
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$115,514										
State Tax Credit	\$77,009										
Net Taxes (due)	\$185,365	\$38,318	\$21,681	\$11,672	\$11,608	\$4,070	(\$3,479)	(\$3,574)	(\$3,681)	(\$3,802)	(\$3,938)
Net Cash Flow	(\$250,281)	\$190,737	\$43,557	\$26,784	\$18,638	\$16,429	\$8,744	\$1,045	\$796	\$531	\$248

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 385,047
Fixed O&M (\$/kW)	Fed1 depreciation basis \$ 327,290
Fixed O&M Escalation	State depreciation basis \$ 385,047
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -111520.1314
Fuel Cost (\$/MBtu)	5 -106350.3745
Fuel Cost Escalation	slope 1033.951387
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	247.0	247.0	247.0	247.0	247.0	247.0	247.0	247.0	247.0
Cost of Generation (\$/mWh)	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86	\$107.86
Operating Revenues	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644	\$26,644
Fixed O&M	\$3,936	\$4,035	\$4,136	\$4,239	\$4,345	\$4,454	\$4,565	\$4,679	\$4,796
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$3,031	\$3,107	\$3,185	\$3,264	\$3,346	\$3,430	\$3,515	\$3,603	\$3,693
Land Cost	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066	\$1,066
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$133	\$133	\$133	\$133	\$133	\$133	\$133	\$133	\$133
Operating Expenses	\$8,167	\$8,341	\$8,519	\$8,702	\$8,890	\$9,082	\$9,279	\$9,481	\$9,688
Interest Payment	\$7,966	\$7,354	\$6,687	\$5,960	\$5,168	\$4,305	\$3,363	\$2,337	\$1,219
Principal Payment	\$6,797	\$7,409	\$8,076	\$8,803	\$9,595	\$10,459	\$11,400	\$12,426	\$13,544
Debt Service	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763	\$14,763
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$10,512	\$10,950	\$11,438	\$11,982	\$12,586	\$13,258	\$14,002	\$14,826	\$15,737
State Income Tax (benefit)	\$632	\$659	\$688	\$721	\$757	\$797	\$842	\$892	\$947
Tax Depreciation - Fed1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed1	\$9,880	\$10,291	\$10,750	\$11,261	\$11,829	\$12,460	\$13,160	\$13,934	\$14,791
Federal Income Tax (benefit)	\$3,458	\$3,602	\$3,762	\$3,941	\$4,140	\$4,361	\$4,606	\$4,877	\$5,177
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$4,090)	(\$4,260)	(\$4,450)	(\$4,662)	(\$4,897)	(\$5,159)	(\$5,448)	(\$5,769)	(\$6,123)
Net Cash Flow	(376)	(720)	(1,089)	(1,483)	(1,906)	(2,359)	(2,846)	(3,369)	(3,930)

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 2 Project - COMMERCIAL (corporate)

Technology Assumptions	
Project Capacity (MW)	0.05
Capital Cost (\$/kW)	\$5,761
Fixed O&M (\$/kW)	\$30
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.65%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	33%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	20%	\$ 500,000
No. of Systems	1	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$133.20

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1
Cost of Generation (\$/MWh)	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20
Operating Revenues	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194
Fixed O&M	\$1,500	\$1,538	\$1,576	\$1,615	\$1,656	\$1,697	\$1,740	\$1,783	\$1,828	\$1,873	\$1,920
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,872	\$1,919	\$1,967	\$2,016	\$2,067	\$2,119	\$2,171	\$2,226	\$2,281	\$2,338	\$2,397
Land Cost	\$768	\$768	\$768	\$768	\$768	\$768	\$768	\$768	\$768	\$768	\$768
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$96	\$96	\$96	\$96	\$96	\$96	\$96	\$96	\$96	\$96	\$96
Operating Expenses	\$4,236	\$4,321	\$4,407	\$4,495	\$4,586	\$4,679	\$4,775	\$4,873	\$4,973	\$5,075	\$5,181
Interest Payment	\$9,074	\$8,897	\$8,704	\$8,493	\$8,263	\$8,013	\$7,740	\$7,442	\$7,118	\$6,765	\$6,379
Principal Payment	\$1,971	\$2,148	\$2,341	\$2,552	\$2,782	\$3,032	\$3,305	\$3,603	\$3,927	\$4,280	\$4,666
Debt Service	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045
Tax Depreciation - State	\$57,614	\$92,183	\$55,310	\$33,188	\$33,186	\$16,593	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$5,883	(\$86,207)	(\$49,226)	(\$26,980)	(\$28,841)	(\$10,091)	\$6,679	\$6,879	\$7,103	\$7,354	\$7,634
State Income Tax (benefit)	\$354	(\$5,185)	(\$2,961)	(\$1,623)	(\$1,615)	(\$607)	\$402	\$414	\$427	\$442	\$459
Tax Depreciation - Fed'l	\$48,972	\$78,356	\$47,013	\$28,208	\$28,208	\$14,104	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$14,172	(\$67,194)	(\$37,969)	(\$20,380)	(\$20,249)	(\$6,995)	\$6,278	\$6,465	\$6,676	\$6,911	\$7,174
Federal Income Tax (benefit)	\$4,960	(\$23,518)	(\$13,289)	(\$7,133)	(\$7,087)	(\$2,448)	\$2,197	\$2,263	\$2,337	\$2,419	\$2,511
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$86,422										
State Tax Credit	\$57,614										
Net Taxes (due)	\$138,722	\$28,703	\$16,250	\$8,756	\$8,702	\$3,055	(\$2,599)	(\$2,677)	(\$2,764)	(\$2,861)	(\$2,970)
Net Cash Flow	(\$187,247)	\$142,635	\$32,532	\$19,992	\$12,409	\$12,264	\$6,525	\$775	\$600	\$412	\$212

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 288,072
Fixed O&M (\$/kW)	Fed't depreciation basis \$ 244,861
Fixed O&M Escalation	State depreciation basis \$ 288,072
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -80336.09539
Fuel Cost (\$/MBtu)	5 -77320.40384
Fuel Cost Escalation	slope 603.1383092
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1	144.1
Cost of Generation (\$/mWh)	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20	\$133.20
Operating Revenues	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194	\$19,194
Fixed O&M	\$1,968	\$2,017	\$2,068	\$2,119	\$2,172	\$2,227	\$2,282	\$2,339	\$2,398
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,457	\$2,518	\$2,581	\$2,646	\$2,712	\$2,780	\$2,849	\$2,920	\$2,993
Land Cost	\$768	\$768	\$768	\$768	\$768	\$768	\$768	\$768	\$768
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$96	\$96	\$96	\$96	\$96	\$96	\$96	\$96	\$96
Operating Expenses	\$5,289	\$5,399	\$5,513	\$5,629	\$5,748	\$5,870	\$5,995	\$6,124	\$6,255
Interest Payment	\$5,860	\$5,502	\$5,003	\$4,459	\$3,867	\$3,220	\$2,516	\$1,749	\$912
Principal Payment	\$5,085	\$5,543	\$6,042	\$6,586	\$7,179	\$7,825	\$8,529	\$9,296	\$10,133
Debt Service	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045	\$11,045
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$7,946	\$8,293	\$8,678	\$9,106	\$9,579	\$10,103	\$10,682	\$11,322	\$12,027
State Income Tax (benefit)	\$478	\$499	\$522	\$548	\$576	\$608	\$643	\$681	\$723
Tax Depreciation - Fed't	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed't	\$7,468	\$7,794	\$8,156	\$8,558	\$9,003	\$9,496	\$10,040	\$10,641	\$11,303
Federal Income Tax (benefit)	\$2,614	\$2,728	\$2,855	\$2,995	\$3,151	\$3,323	\$3,514	\$3,724	\$3,956
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$3,092)	(\$3,227)	(\$3,377)	(\$3,543)	(\$3,727)	(\$3,931)	(\$4,156)	(\$4,405)	(\$4,680)
Net Cash Flow	(231)	(477)	(740)	(1,023)	(1,326)	(1,652)	(2,003)	(2,380)	(2,786)

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.05
Capital Cost (\$/kW)	\$6,096
Fixed O&M (\$/kW)	\$30
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	30.08%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
ITC	30%
State Tax Credit	20%
No. of Systems	1
CapEx	\$ 500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$154.75

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8
Cost of Generation (\$/MWh)	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75
Operating Revenues	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388
Fixed O&M	\$1,500	\$1,538	\$1,576	\$1,615	\$1,656	\$1,697	\$1,740	\$1,783	\$1,828	\$1,873	\$1,920
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,133	\$2,187	\$2,241	\$2,298	\$2,355	\$2,414	\$2,474	\$2,536	\$2,599	\$2,664	\$2,731
Land Cost	\$816	\$816	\$816	\$816	\$816	\$816	\$816	\$816	\$816	\$816	\$816
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$102	\$102	\$102	\$102	\$102	\$102	\$102	\$102	\$102	\$102	\$102
Operating Expenses	\$4,551	\$4,642	\$4,735	\$4,830	\$4,928	\$5,028	\$5,131	\$5,236	\$5,344	\$5,455	\$5,569
Interest Payment	\$8,601	\$9,413	\$9,208	\$8,985	\$8,742	\$8,477	\$8,189	\$7,874	\$7,531	\$7,157	\$6,750
Principal Payment	\$2,085	\$2,273	\$2,477	\$2,700	\$2,943	\$3,208	\$3,497	\$3,812	\$4,155	\$4,529	\$4,936
Debt Service	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686
Tax Depreciation - State	\$60,956	\$97,530	\$58,518	\$35,111	\$35,111	\$17,555	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$6,236	(\$91,196)	(\$52,073)	(\$28,539)	(\$28,393)	(\$10,673)	\$7,068	\$7,277	\$7,512	\$7,776	\$8,070
State Income Tax (benefit)	\$375	(\$5,485)	(\$3,132)	(\$1,717)	(\$1,708)	(\$642)	\$425	\$438	\$452	\$468	\$485
Tax Depreciation - Fed'l	\$51,813	\$82,900	\$49,740	\$29,844	\$29,844	\$14,922	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$15,005	(\$71,082)	(\$40,163)	(\$21,555)	(\$21,419)	(\$7,398)	\$6,643	\$6,840	\$7,060	\$7,308	\$7,584
Federal Income Tax (benefit)	\$5,252	(\$24,879)	(\$14,057)	(\$7,544)	(\$7,497)	(\$2,589)	\$2,325	\$2,394	\$2,471	\$2,558	\$2,654
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$91,434										
State Tax Credit	\$60,956										
Net Taxes (due)	\$146,763	\$30,364	\$17,189	\$9,261	\$9,204	\$3,231	(\$2,750)	(\$2,832)	(\$2,923)	(\$3,025)	(\$3,140)
Net Cash Flow	150,914	34,424	21,157	13,133	12,978	6,905	821	634	435	222	(8)

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 304,780
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 259,063
Fixed O&M Escalation	State depreciation basis \$ 304,780
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -85332.88367
Fuel Cost (\$/MBtu)	5 -82575.67997
Fuel Cost Escalation	slope 551.4407399
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8
Cost of Generation (\$/mWh)	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75	\$154.75
Operating Revenues	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388	\$20,388
Fixed O&M	\$1,968	\$2,017	\$2,068	\$2,119	\$2,172	\$2,227	\$2,282	\$2,339	\$2,398
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$2,799	\$2,869	\$2,941	\$3,015	\$3,090	\$3,167	\$3,246	\$3,327	\$3,411
Land Cost	\$816	\$816	\$816	\$816	\$816	\$816	\$816	\$816	\$816
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$102	\$102	\$102	\$102	\$102	\$102	\$102	\$102	\$102
Operating Expenses	\$5,685	\$5,804	\$5,926	\$6,051	\$6,180	\$6,311	\$6,446	\$6,584	\$6,726
Interest Payment	\$6,305	\$5,821	\$5,293	\$4,718	\$4,091	\$3,407	\$2,662	\$1,850	\$965
Principal Payment	\$5,380	\$5,865	\$6,392	\$6,968	\$7,595	\$8,278	\$9,023	\$9,836	\$10,721
Debt Service	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686	\$11,686
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$8,398	\$8,763	\$9,168	\$9,618	\$10,117	\$10,669	\$11,279	\$11,953	\$12,697
State Income Tax (benefit)	\$505	\$527	\$551	\$579	\$609	\$642	\$678	\$719	\$764
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$7,893	\$8,236	\$8,617	\$9,040	\$9,509	\$10,027	\$10,601	\$11,234	\$11,933
Federal Income Tax (benefit)	\$2,762	\$2,882	\$3,016	\$3,184	\$3,328	\$3,510	\$3,710	\$3,932	\$4,177
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$3,268)	(\$3,410)	(\$3,567)	(\$3,743)	(\$3,937)	(\$4,151)	(\$4,389)	(\$4,651)	(\$4,940)
Net Cash Flow	(250)	(511)	(791)	(1,092)	(1,414)	(1,761)	(2,133)	(2,533)	(2,964)

Cost of Generation Calculator

All inputs are in blue.

Wind Tier 2 Project - COMMERCIAL (corporate)

Technology/Assumptions	
Project Capacity (MW)	0.025
Capital Cost (\$/kW)	\$6,555
Fixed O&M (\$/kW)	\$40
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	2.5%
Insurance (% CapEx/year)	0.7%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	2.5%
Land (% royalty on revenues)	4.0%
Heat Rate (Btu/kWh)	0
Production Degradation (%/year)	0.00%
Capacity Factor	28.20%

Financial/Economic Assumptions	
Debt Percentage	35%
Debt Rate	9%
Debt Term (years)	20
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.5%
Cost of Equity	11%
Discount Rate	9%

Incentives		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
ITC	30%	
State Tax Credit	20%	\$ 500,000
No. of Systems	1	

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$181.36

Year	1	2	3	4	5	6	7	8	9	10	11
Annual Generation (MWh)	61.8	61.8	61.8	61.8	61.8	61.8	61.8	61.8	61.8	61.8	61.8
Cost of Generation (\$/MWh)	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36
Operating Revenues	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201
Fixed O&M	\$1,000	\$1,025	\$1,051	\$1,077	\$1,104	\$1,131	\$1,160	\$1,189	\$1,218	\$1,249	\$1,280
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,147	\$1,176	\$1,205	\$1,235	\$1,266	\$1,298	\$1,330	\$1,364	\$1,398	\$1,433	\$1,468
Land Cost	\$448	\$448	\$448	\$448	\$448	\$448	\$448	\$448	\$448	\$448	\$448
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$56	\$56	\$56	\$56	\$56	\$56	\$56	\$56	\$56	\$56	\$56
Operating Expenses	\$2,851	\$2,705	\$2,760	\$2,816	\$2,874	\$2,933	\$2,994	\$3,056	\$3,120	\$3,185	\$3,253
Interest Payment	\$5,162	\$5,061	\$4,951	\$4,831	\$4,701	\$4,558	\$4,403	\$4,234	\$4,049	\$3,848	\$3,629
Principal Payment	\$1,121	\$1,222	\$1,332	\$1,452	\$1,583	\$1,725	\$1,880	\$2,049	\$2,234	\$2,435	\$2,654
Debt Service	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283
Tax Depreciation - State	\$32,775	\$52,440	\$31,464	\$18,878	\$18,878	\$9,439	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$3,387	(\$49,005)	(\$27,974)	(\$15,325)	(\$15,252)	(\$5,730)	\$3,804	\$3,911	\$4,031	\$4,167	\$4,319
State Income Tax (benefit)	\$204	(\$2,948)	(\$1,683)	(\$922)	(\$917)	(\$345)	\$229	\$235	\$242	\$251	\$260
Tax Depreciation - Fed'l	\$27,859	\$44,574	\$26,744	\$16,047	\$16,047	\$8,023	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$8,100	(\$38,192)	(\$21,572)	(\$11,572)	(\$11,503)	(\$3,970)	\$3,575	\$3,675	\$3,789	\$3,916	\$4,059
Federal Income Tax (benefit)	\$2,835	(\$13,367)	(\$7,550)	(\$4,050)	(\$4,026)	(\$1,389)	\$1,251	\$1,286	\$1,326	\$1,371	\$1,421
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$49,163										
State Tax Credit	\$32,775										
Net Taxes (due)	\$78,899	\$16,315	\$9,233	\$4,972	\$4,944	\$1,734	(\$1,480)	(\$1,522)	(\$1,569)	(\$1,621)	(\$1,681)
Net Cash Flow	(\$106,519)	\$81,165	\$18,527	\$11,391	\$7,073	\$6,987	\$3,718	\$443	\$340	\$229	\$111

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Cost of Generation

All inputs are in blue.

Technology/Assumptions	Calculation
Project Capacity (MW)	
Capital Cost (\$/kW)	Cap Cost \$ 163,875
Fixed O&M (\$/kW)	Fed'l depreciation basis \$ 139,294
Fixed O&M Escalation	State depreciation basis \$ 163,875
Variable O&M (\$/MWh)	
Variable O&M Escalation	0
Insurance (% CapEx/year)	0 -46880.15128
Fuel Cost (\$/MBtu)	5 -45587.71205
Fuel Cost Escalation	slope 258.4878468
Land (% royalty on revenues)	
Heat Rate (Btu/kWh)	
Production Degradation (%/year)	
Capacity Factor	

Year	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	61.8	61.8	61.8	61.8	61.8	61.8	61.8	61.8	61.8
Cost of Generation (\$/mWh)	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36	\$181.36
Operating Revenues	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201	\$11,201
Fixed O&M	\$1,312	\$1,345	\$1,379	\$1,413	\$1,448	\$1,485	\$1,522	\$1,560	\$1,599
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$1,505	\$1,543	\$1,581	\$1,621	\$1,661	\$1,703	\$1,745	\$1,789	\$1,834
Land Cost	\$448	\$448	\$448	\$448	\$448	\$448	\$448	\$448	\$448
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Excise Tax	\$56	\$56	\$56	\$56	\$56	\$56	\$56	\$56	\$56
Operating Expenses	\$3,321	\$3,392	\$3,464	\$3,538	\$3,614	\$3,691	\$3,771	\$3,853	\$3,937
Interest Payment	\$3,390	\$3,130	\$2,846	\$2,537	\$2,200	\$1,832	\$1,431	\$895	\$519
Principal Payment	\$2,893	\$3,153	\$3,437	\$3,746	\$4,084	\$4,451	\$4,852	\$5,288	\$5,764
Debt Service	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283	\$6,283
Tax Depreciation - State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - State	\$4,489	\$4,879	\$4,891	\$5,126	\$5,387	\$5,677	\$5,998	\$6,353	\$6,745
State Income Tax (benefit)	\$270	\$281	\$294	\$308	\$324	\$341	\$361	\$382	\$406
Tax Depreciation - Fed'l	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income - Fed'l	\$4,219	\$4,398	\$4,597	\$4,818	\$5,063	\$5,336	\$5,637	\$5,971	\$6,340
Federal Income Tax (benefit)	\$1,477	\$1,539	\$1,609	\$1,686	\$1,772	\$1,867	\$1,973	\$2,090	\$2,219
PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC									
State Tax Credit									
Net Taxes (due)	(\$1,747)	(\$1,821)	(\$1,903)	(\$1,995)	(\$2,096)	(\$2,209)	(\$2,334)	(\$2,472)	(\$2,625)
Net Cash Flow	(151)	(295)	(449)	(615)	(792)	(983)	(1,188)	(1,407)	(1,644)

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(Docket No. 2008-0273)

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